Feasibility Evaluation

Production Well Evaluation - Carbon Tetrachloride Contamination Freeman School District Freeman, Washington

for David Evans & Associates, Inc.

March 14, 2013



Earth Science + Technology

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Freeman School District
Freeman, Washington

File No. 2958-003-00

March 14, 2013

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INTRODUCTION

This report presents results of our feasibility study to identify and evaluate alternatives for addressing carbon tetrachloride contamination in a groundwater production well (herein termed the Production Well) operated by Freeman School District No. 358 (FSD) in Freeman, Washington. The FSD, and the Production Well, are located within southeast Spokane County, Washington, approximately as shown in the Vicinity Map, Figure 1.

Groundwater samples collected from the Production Well have contained carbon tetrachloride at concentrations exceeding the Maximum Contaminant Level (MCL) of 5 micrograms per liter (µg/L). The FSD received a grant from the Washington State Department of Health (DOH) to investigate alternatives to address carbon tetrachloride impact to the FSD water supply system. The FSD retained David Evans and Associates (DEA) as their prime civil engineer on this project, and DEA retained GeoEngineers, Inc. to conduct this feasibility study. The DOH, in conjunction with the Environmental Protection Agency (EPA), concurrently are assessing the source(s) of carbon tetrachloride in groundwater near the Production Well; the DOH and EPA findings reportedly will be provided later this spring and should be utilized to supplement the findings in this report.

This report includes GeoEngineers' discussion of the carbon tetrachloride impact to groundwater quality in Freeman and a summary of geologic and hydrogeologic conditions in the area. We also provide results of recent groundwater sampling, an overview of the existing FSD water supply infrastructure, and a prioritized list of alternatives for consideration.

SCOPE OF SERVICES

The purpose of our feasibility evaluation was to characterize hydrogeologic conditions near FSD's Production Well, and identify and prioritize water supply alternatives for mitigating documented carbon tetrachloride contamination. We also considered the approximate capital and operational expenses and risk level (i.e. that the alternative will be successful) associated with the list of alternatives.

Our specific scope of services for this feasibility evaluation generally was consistent with our proposal dated December 4, 2012 and our authorization to proceed on December 18, 2012 under our contract with DEA. The activities conducted also were consistent with the Statement of Work associated with Contract Number N19796 between the DOH and FSD and consisted of the following:

Element 1 - Review and Evaluate Existing Information

- 1. Researched existing information regarding area hydrogeologic conditions in the site vicinity.
- 2. Developed a hydrogeologic model for the aquifer system underlying the FSD campus using the finite difference numerical model MODFLOW.
- Based on water use information provided by DEA and/or FSD, researched state-of-the-industry techniques and associated approximate costs associated with carbon tetrachloride treatment alternatives.



Element 2 - Collect New Data

Key Wells

- Based on results of Element 1, identified a list of key existing wells for groundwater monitoring activities. Key wells were defined to achieve geographic distribution around the Production Well.
- 2. Performed a hydrogeologic reconnaissance of the site and surrounding area. During reconnaissance activities, we identified the approximate locations of key wells identified during performance of Element 1.

Quality Assurance Project Plan

1. Prepared a Quality Assurance Project Plan (QAPP), generally consistent with the Washington State Department of Ecology's (Ecology's) *Guidelines for Preparing Quality Assurance Project Plans* that describes project objectives, the project Health and Safety Program, and data collection equipment and procedures.

Groundwater Elevations

- Measured depth to groundwater relative to the well casing rims using an electric water level indicator in wells W20 and W26. Pitless adapters, pumps, and/or other equipment were present in other monitored wells and precluded access to the interior of the well with our equipment for the purpose of water level measurements.
- Estimated the elevation of the wellhead of each well casing rim associated with a groundwater level measurement, relative to the North American Vertical Datum of 1988 (NAVD 88), using a Global Positioning System (GPS).
- Calculated the approximate groundwater elevation associated with each depth to groundwater measurement.

Groundwater Sampling

- 1. Collected groundwater samples from selected existing groundwater wells for water quality and chemical analysis.
- Submitted groundwater samples to TestAmerica Laboratories, Inc. of Spokane, Washington for analysis of volatile organic compounds (VOC) using EPA Method 8260. Samples from five wells were collected and analyzed.

Analysis

- 1. Based on the hydrogeologic conceptual (MODFLOW) model developed in Element 1, as well as the groundwater monitoring data developed in Element 2, estimated the following:
 - a. The potentiometric surface distribution and groundwater flow direction associated with the target aquifer.
 - b. The distribution of carbon tetrachloride contamination within target aquifer zones beneath and near the FSD campus.
 - c. Potential new well site areas that could have relatively high yield potential and low carbon tetrachloride contamination potential.

Element 3 - Feasibility Study Report

- 1. Prepared a draft feasibility study report with the following components:
 - a. Description of system facilities;
 - b. Characterization of site hydrogeology;
 - c. Inventory and description of existing area wells;
 - d. Description of historic area water quality;
 - e. Summary of project data collection and analyses;
 - f. Summary of the health risks associated with carbon tetrachloride groundwater contamination; and
 - g. A feasibility evaluation of water supply alternatives potentially available to the school district, which include but are not limited to water treatment, new well siting and construction, and retrofit of existing wells. For each alternative, the associated relative cost, permitting, water rights, and scheduling implications were evaluated.

DISCUSSION

Site History

Carbon tetrachloride has been detected in samples collected from the Production Well since January 2001. The Production Well (Well Identification No. AHC757) is the current drinking water source for the school campus, which consists of district elementary, middle, and high schools, and is located southeast and southwest of the intersection of State Route 27 and Jackson Road in Freeman, Washington. The Production Well was drilled in 1980 and is 6 inches in diameter, 215 feet deep, and cased to 52 feet. An open (uncased) hole extends down from about 52 to 215 feet below site grade. The uncased portion of the well primarily is open to basalt flows associated with the Columbia River Basalt Group (CRBG), although granitic basement rock was reported below a depth of about 197 feet. No information appears to be available regarding the depth of the water-bearing zone or zones intersected by the well bore or the operational drawdown within the well. We understand the Production Well operates at a discharge rate ranging from less than 2 to about 55 gallons per minute (gpm) based on average pumping rates over an approximate one month period. Groundwater samples currently are collected from the Production Well by FSD on a monthly basis.

Historic groundwater quality data collected by FSD indicates the Production Well is contaminated with carbon tetrachloride, the concentration of which has periodically exceeded the MCL, as tabulated in Historic Carbon Tetrachloride Results Associated with the Production Well, Table 1 and presented graphically in Historic Carbon Tetrachloride Results Associated with the Production Well, Figure 2. The carbon tetrachloride concentration has ranged from non-detect (less than 0.50 micrograms per liter [μ g/L]) to a maximum 8.00 μ g/L in December 2012, and has exceeded the MCL in the spring of 2008, the spring of 2012, and the winter of 2012. In December 2012, the running 12-month average carbon tetrachloride concentration in samples collected from the Production Well was greater than the 5 μ g/L MCL.

We understand that the FSD wants to proactively address this issue prior to regulatory intervention. The Production Well previously was investigated by Ecology, but a definitive carbon tetrachloride source was not identified.

A second existing water supply well, referred to as the **(b) (6)** Well (W26), is situated on a former residential property acquired by the FSD for the recent campus expansion program. The **(b) (6)** Well was tested for carbon tetrachloride concentration in May 2012 as a basis for evaluating its potential as a water supply alternative for the FSD. However, the resulting carbon tetrachloride concentration was $48.1 \, \mu g/L$, which is more than 9 times greater than the MCL.

Carbon Tetrachloride

Properties

Carbon tetrachloride is a manufactured chemical which does not occur naturally in the environment. It is a clear, nonflammable liquid which is almost insoluble in water. It has a sweet characteristic odor, with an odor threshold above 10 parts per million (ppm). Carbon tetrachloride has a density of 1.59 grams per cubic centimeter (g/cm³) at 20 degrees Celsius (°C); it is approximately 1.6 times denser than water.

Health Hazards

Exposure routes for carbon tetrachloride include inhalation, skin absorption, ingestion, and eye contact. Acute exposure to carbon tetrachloride by inhalation or oral exposure may result in headaches, weakness, lethargy, nausea, and vomiting. Acute exposures to greater concentrations, and chronic exposure by inhalation or oral exposure, may result in liver and kidney damage and depression of the central nervous system. Carbon tetrachloride has also been classified as a probable human carcinogen by the EPA, which has summarized health hazard information associated with carbon tetrachloride at the following web site:

(http://www.epa.gov/ttnatw01/hlthef/carbonte.html#ref9).

Table 2 tabulates regulatory and advisory values for carbon tetrachloride from various regulatory, governmental, and other groups.

TABLE 2. REGULATORY AND ADVISORY VALUES FOR CARBON TETRACHLORIDE

Group	Concentration	Exposure Pathway	Group type
EPA MCL for drinking water	5 ppb (5 μg/L)	Ingestion	Regulatory
Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL)	10 ppm (8-hour time- weighted average [TWA]) 25 ppm (Ceiling) 200 ppm (5-minute maximum in any 3 hours)	Inhalation and skin	Regulatory
National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL)	2 ppm (60-minute, short-term exposure limit [STEL])	Inhalation	Advisory

Group	Concentration	Exposure Pathway	Group type
NIOSH immediately dangerous to life or health (IDLH)	200 ppm	Inhalation	Advisory
American Industrial Hygiene Association (AIHA) Emergency Response Planning Guidelines (ERPG)-1	20 ppm	Inhalation	Advisory
AIHA ERPG-2	100 ppm	Inhalation	Advisory
American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV)	5 ppm (8-hour TWA) 10 ppm STEL	Skin	Advisory

Notes:

ppb = parts per billion; ppm = parts per million

AIHA ERPG-1: The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild, transient, adverse health effects or without perceiving a clearly defined objectionable odor.

AIHA ERPG-2: The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.

ACGIH TLV: TWA – 8 hour workday and 40-hour week. STEL – 15-minute TWA exposure that should not be exceeded at any time during a workday.

Uses

Carbon tetrachloride has been used for a wide variety of industrial applications including metal degreasing, as a dry-cleaning fluid, fabric-spotting fluid, fire-extinguisher fluid, solvent, in the manufacture of semiconductors, in petrol additives and refrigerants, and as a catalyst in the production of polymers. It is still used in some industrial applications.

Most applicable to the land use setting of the Freeman area, carbon tetrachloride has also been used as a fumigant for the post-harvest storage of grain and as a pesticide in the agricultural industry. Use was widespread in the early part of the 20th century, but began to decline around 1940 as its adverse health effects became apparent. Carbon tetrachloride's use as a grain fumigant persisted until 1986, when it's use for this purpose was banned by the EPA.

GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

Geologic Setting

The surficial geology of the Freeman area has been described in various publications including Weis (1968) and Stoffel et al. (1991). Aspects of the subsurface geology of the area have been documented in Drost and Whiteman (1986), Luzier and Burt (1974), and Whiteman et al. (1994). Surficial geology near the FSD campus is presented in Surficial Geology Map, Figure 3.



Basement rocks in the vicinity of the site generally consist of metasedimentary rocks of the Precambrian-age (greater than about 570 million years [Ma]) Belt Supergroup. These rocks were intruded by granitic plutonic rocks during the Mesozoic (245 to 65 Ma) and Tertiary (65 to 1.5 Ma) (Stoffel et al. 1991).

Basement rocks are stratigraphically overlain by basalt flows associated with the CRBG. The CRBG was deposited during an extended period of Miocene (23 to 5 Ma) volcanism that extruded a series of very fluid lava flows. The lava flowed from north-northwest trending fissures as much as 90 miles long which were located primarily in northeastern Oregon and southeast Washington (Hooper 1982). The resulting basalt deposits are hundreds to thousands of feet thick and extend throughout the Columbia Plateau. The CRBG has been subdivided into five formations that include, from oldest to youngest, the Imnaha Basalt, Picture Gorge Basalt, Grande Ronde Basalt, Wanapum Basalt, and Saddle Mountains Basalt. Two of these formations, the Grande Ronde and Wanapum, have been identified within the Freeman area (Whiteman et. al. 1994).

The Grande Ronde Basalt is the most voluminous of the CRBG formations, comprising 85 to 88 percent of the total volume of the CRBG (Whiteman et al. 1994). The Grande Ronde Basalt Formation is widespread throughout the area except where the elevation of pre-Miocene basement rocks were higher than the top of the formation; generally this occurred at steptoes. The top of the Grande Ronde Basalt is often marked by (1) a weathered zone frequently described in water well reports as a water-bearing, fractured or vesicular zone with minor clay; and/or (2) a sedimentary interbed (Latah Formation) that separates it from the overlying Wanapum Basalt Formation.

The Wanapum Basalt is the second-most voluminous of the CRBG formations, comprising about 6 percent of the total volume of the CRBG (Whiteman et al. 1994). It stratigraphically overlies the Grande Ronde Basalt. The Wanapum Basalt pinches out at steptoes or has been removed by erosion within drainages. Surface exposures are abundant (Stoffel et al. 1991). The Wanapum Basalt has been observed at up to 292 feet in thickness in area wells.

The CRBG is overlain by Quaternary-age (less than about 1.5 Ma) loess (wind-blown clay, silt and fine sand) and alluvium.

Hydrogeologic Setting

General

The Freeman area generally is underlain by a minimum of two aquifer systems. These aquifers occur within the (1) CRBG; and (2) basement rocks. The CRBG Formations generally are suitable for extracting groundwater of sufficient quantity for water supply and distribution systems. However, basement rocks can yield sufficient quantities of groundwater for domestic supply in certain areas.

CRBG Aquifer System

The CRBG consists of a series of individual basalt flows. Groundwater is most readily transmitted through the broken vesicular and scoriaceous interflow zones that characterize the top of each flow. The interflow zones are separated by the less porous and less transmissive entablature and colonnade, which comprise 90 to 95 percent of the total flow volume (Whiteman et al. 1994). The

flows are locally interlayered with sedimentary deposits of the Latah Formation. This system of multiple flows and interlayered sedimentary deposits creates multiple stacked confined to semi-confined aquifers which can yield significant volumes of groundwater to wells.

The CRBG is overlain, in places, by relatively coarse-grained Quaternary deposits. In other locations, the CRBG directly crops out on the surface. Recharge to the CRBG occurs through direct precipitation, vertical infiltration from the overlying unconsolidated sediments, and lateral recharge from upgradient areas to the north and east. A minor component of recharge could migrate upward as leakage from underlying basement rocks, depending on head conditions. Discharge from the CRBG occurs through leakage to adjacent aquifers, along gaining reaches of streams, and to water supply wells.

Basement Rock Aquifer

Groundwater occurs in basement rocks, which underlie the CRBG, in fractured and/or weathered zones. Porosity and permeability are generally low. The yield of water wells penetrating into the basement rock aquifer generally is low, typically on the order of several gallons per minute or less.

Recharge to the basement rock aquifer occurs primarily within upgradient areas to the east, with groundwater flowing laterally to discharge areas within the plateau interior. Recharge could also occur through leakage from the overlying CRBG.

General

An objective of this investigation was to maximize use of existing subsurface information and well resources as a basis for efficiently using FSD grant resources. Toward that end, GeoEngineers performed a detailed review of water well report information on file with Ecology for wells within about 1 mile of the FSD. A total of 34 area water well reports were identified, assigned a reference number (e.g. W15), and are provided in Appendix A. Selected approximate well locations are presented in Site Plan – Area Wells, Figure 4.

Stratigraphy

Water well report information was used to develop Cross Section A-A', Figure 5, which presents hydrostratigraphic conditions along a northeast-southwest trending section line across the FSD campus.

Available subsurface information suggests that, in general, a surficial loess layer extends from topsoil to the CRBG and ranges in thickness from a few feet to about 100 feet thick. At the Production Well, this surficial unit was on the order of 50 feet thick.

The top of the CRBG generally increases from approximately Elevation 2,500 feet to 2,600 feet from west to east across the area. (Elevations in this report refer to the NAVD 88.) Various low-permeability interbeds are present within the CRBG. At the Production Well, the basalt/interbed sequence was on the order of 145 feet thick.

East and northeast of the FSD campus, the CRBG pinches out, and basement rocks are encountered at or near the ground surface. The top elevation of basement rocks is approximately Elevation 2,400 feet near the FSD campus, and increases to approximately Elevation 2,650 feet to

the north and east. In a few wells, thin layers of gravel (described as consisting of clasts of basement rock origin) were encountered at the base of the CRBG.

Well Construction

Wells in the area generally were constructed by placing steel well casing from surface to 50 or 200 feet below ground surface to seal off unconsolidated surficial soil units. Either a liner is placed below the well casing or the borehole is open to the total depth drilled. As a result, most area wells are open to 25 to 450 feet of CRBG near the FSD campus. To the northeast and east of the FSD campus, where CRBG generally is not present, most wells are open to crystalline basement rocks.

Pumping rates in wells open to the CRBG range from 5 to 120 gpm, and pumping rates of 10 to 30 gpm are typical. Pumping rates in wells open to basement rock aquifers are generally much less than basalt aquifer wells, ranging from 0.25 to 50 gpm, and typically less than 10 gpm.

Candidate Wells

Based on project objectives and our review of area water well reports, we developed a list of 11 candidate wells for inclusion within the project water quality monitoring program. These wells, and key well characteristics, are listed on Table 3. Also provided are access considerations developed during our well "ground-truthing" operations.

TABLE 3. PROPOSED CANDIDATES FOR MONITORING WELLS

Well Number	Well Owner Name	Well Opening Depth (feet below ground surface)	Interpreted Aquifer(s)	Position Relative to the Production Well	Access Considerations
WS5	FREEMAN SCHOOL DISTRICT #358	52-215	CRBG and Basement	Marie and the	Production Well - Granted
WS1	FREEMAN SCHOOL DISTRICT #358	62-375	CRBG and Basement	Upgradient	Could Not Locate
WS3	FREEMAN SCHOOL DISTRICT #358	56-250 302.5-387	CRBG and Basement	Crossgradient	Could Not Locate
W10	(b) (6)	44-220	CRBG	Downgradient	Could Not Access
W12		39-180	CRBG	Upgradient	Omitted
W19		50-? ?-300	Basement	Upgradient	Omitted
W20		64-100	CRBG	Upgradient	Granted
W22		97-560	Basement	Upgradient	Omitted
W23		119-300	Basement	Upgradient	Omitted
W26		44-140	CRBG	Upgradient	Granted

Well Number	Well Owner Name	Well Opening Depth (feet below ground surface)	Interpreted Aquifer(s)	Position Relative to the Production Well	Access Considerations
W30	(b) (6)	59-180	CRBG	Up- or Cross- Gradient	Granted

In addition, we identified the Freeman Store well, located about 500 feet north-northwest of the FSD during our ground-truthing activities. A well log for this well could not be identified. However, access to sample this well was granted by the owner.

Conceptual Groundwater Model

To help understand the groundwater flow and to interpret the groundwater flow regime within the project area, a conceptual model was developed using the finite difference numerical code MODFLOW. A combination of regional flow and precipitation within the basin are the main sources of groundwater recharge in the model area. Primary groundwater model assumptions include the following:

- Model type: steady state
- Model discretization: seven layers, 142 rows, and 200 columns
- Model zones: six zones based on lithology and assumed hydraulic properties
- Boundary conditions: a combination of general head, drain, and recharge

Based on model assumptions and inputs, groundwater generally flows from northeast toward southwest in the model area. Hydraulic gradient within the CRBG near the FSD campus is about 1×10^{-2} feet per foot (about 50 feet per mile).

Groundwater Sampling - January 2013

General

Based on the candidate wells described in Table 3 above, ground-truthing activities and our initial evaluations we selected five area wells for sampling; selection was based on proximity to the FSD campus, permission to access private wells, and to better identify the location and extent of the carbon tetrachloride plume in groundwater. Locations of sampled wells are presented in Site Plan – Wells Sampled January 2013, Figure 6, and include the following:

- The Production Well (WS5), which is located on the south side of the campus near the tennis courts. The access sampling point is located about 1,800 feet north, near the pump house and the high school.
- The (b) (6) well (W26), which is located on the north side of the campus.
- The (b) well (W30), which is located off-campus to the southeast.
- A formerly active water supply well (W20) situated within the southeast portion of the FSD campus, originally owned by (b) (6)



The Freeman Store Well, located about 500 feet north of the high school.

Samples were submitted to TestAmerica for analysis of VOC concentrations. Sampling procedures are described in Appendix B of this report.

Results

Samples collected from the Production Well and W20 in January 2013 contained carbon tetrachloride concentrations of 22.0 and 21.2 μ g/L, respectively. These concentrations exceed the MCL by 17.0 and 16.2 μ g/L, respectively. Chloroform also was detected in these wells at concentrations of 1.28 and 2.04 μ g/L, respectively, less than the EPA Maximum Contaminant Level Goal (MCLG) of 70 μ g/L.

No VOCs were detected in the three remaining sampled wells (W26, W30, and the Freeman Store well),

VOCs detected in collected samples are summarized in Table 4. A full presentation of groundwater analytical results for the January 2013 sampling event is provided in Summary of Analytical Results and Groundwater Quality Parameters, Table 5. Copies of original laboratory certificates are included in Appendix C.

TABLE 4. GROUNDWATER ANALYTE DETECTION SUMMARY

		Well and Da	te Sampled			
Analytes	Target Levels (μg/L)	W20 01/21/13	W26 01/21/13	Freeman Store 01/21/13	W30 (Reed) 01/25/13	Production Well 01/25/13
Chloroform	701	2.04	ND	ND	ND	1.28
Carbon Tetrachloride	52	21.2	ND	ND	ND	22.0

Notes:

¹EPA MCLG

²EPA MCL

Bold indicates sample above applicable target level

Interpretation

Based on land use surrounding the FSD, we suspect an agricultural-related source for the carbon tetrachloride observed in groundwater in wells W20 and the Production Well. This source could be related to previous grain furnigant and/or pesticide use. Carbon tetrachloride was not detected in the sample collected from the (b) (6) well (W26) in January 2013, although carbon tetrachloride was detected in a sample collected from this well in May 2012. This could be a result of using different sampling procedures (such as removal volume prior to sampling), sampling at different depths, time of year, or plume migration.

The groundwater flow direction in the CRBG aquifer system, which has been impacted by carbon tetrachloride, is interpreted to be to the southwest. Three wells have contained concentrations of carbon tetrachloride greater than the MCL: the Production Well, the (b) (6) well (W26), and well

W20, which is located east-northeast of the Production Well. These wells are highlighted in Site Plan - Wells with Documented Concentrations of Carbon Tetrachloride Greater than MCLs, Figure 7. These considerations, along with the plume that extends through the approximate center of the FSD campus, suggests that the source could have originated northeast of well W20.

Historic carbon tetrachloride concentration data presented in Figure 2 suggests that increased groundwater recharge during spring tends to exacerbate contaminant concentrations in groundwater captured by the Production Well. The data also suggests that the trend in groundwater carbon tetrachloride concentrations at that location generally is increasing.

EXISTING FSD WATER SUPPLY INFRASTRUCTURE AND USAGE

The existing Production Well is located near the tennis courts in the south portion of the FSD campus; water is pumped about 1,800 feet through a 3-inch-diameter pipe to a new pump house located west of the existing high school. Three, 100,000-gallon reservoirs (aboveground tanks) are utilized to temporarily store water. Water to each reservoir is supplied from the pump house through either 2½-or 3-inch-diameter high density polyethylene (HDPE) pipes and water is released from each reservoir through either 6- or 8-inch-diameter HDPE pipes back through the pump house. The outlet pipe from the pump house to the school facilities is 12 inches in diameter. Currently, there is no piping infrastructure interconnecting the individual reservoirs.

A 3-inch-diameter pipe also extends from the existing (b) (6) well to the water supply system; however, the (b) (6) well currently is not functioning and not connected to the water supply system. As mentioned earlier, carbon tetrachloride has been detected at concentrations greater than the MCL in groundwater samples collected from both the (b) (6) well and the Production Well, which are the two current wells with piping infrastructure connected (or potentially connected) to the water storage system.

The current FSD water right permits production of 39 acre-feet of water per year from April 1 to October 1 for non-agricultural irrigation and an additional 49 acre-feet per year for continuous domestic supply. An acre-foot is approximately 326,000 gallons. In general, about 44,000 gallons per day is available for domestic usage, although usage decreases considerably when school is not in session. About 70,000 gallons per day is available during the approximate 6-month irrigation season. The maximum instantaneous allowable pumping rate is 55 gpm.

Based on water use data from May 2010 through February 2013 (provided by FSD), average flow rate during the months from October through May (the school year) ranged from about 4.8 to 6.5 gpm as averaged during these time periods. The average flow rate during the months from June through September (the irrigation season) ranged from about 27.6 to 42.1 gpm.

Most water use during the school year is for consumptive use (drinking, washing, cleaning, bathroom supply, etc.) within the school buildings. Most water use during the summer months is for irrigation purposes. The water reservoirs collectively contain 300,000 gallons; the school is required to keep 240,000 on supply for fire suppression purposes. Therefore, the storage capacity for consumptive and irrigation supply is about 60,000 gallons.



ALTERNATIVES ANALYSIS

General

Three general categories of alternatives are available to the FSD to address the carbon tetrachloride contamination, including: (1) alternative water supply sources, (2) retrofitting of existing water supply wells, and (3) water treatment. Within these categories, we have identified a total of 11 specific alternatives, which are described in Alternatives Analysis, Table 6. These include one alternative water supply, one existing well modification, and nine treatment options. Each alternative listed in Table 6 will require some modifications of the existing water supply system infrastructure. This table also includes approximate capital, and operations and maintenance (O&M) costs, an analysis of the effectiveness and probability of success for each option, time frames and permits needed, and the advantages and disadvantages of each alternative. Based on this information, we provide our recommendations for FSD to move forward in the next section of this report. Note that all options will require either pumping tests or pilot tests (for treatment options) to conform with water quality standards established in WAC 246-290-310.

Alternative Water Supplies

This alternative consists of the installation and construction of a new water supply well located outside of the area of the existing carbon tetrachloride plume in groundwater. Based on groundwater flow direction (southwest) and locations of wells with detected carbon tetrachloride (see Site Plan – Proposed Locations of New Wells, Figure 8), existing information suggests that the most optimal on-campus well siting location likely is in the northwest portion of the campus. We recommend that the well be drilled to the top of basement rock: we estimate the likely depth of the well on the order of about 215 feet. The location for this well must be approved by DOH and maintain an adequate 100-foot Sanitary Control Area (SCA).

The benefits of a new well in this location are: water treatment likely is not necessary to address the carbon tetrachloride contamination depending on distance from the contaminated groundwater plume; the well potentially can be located near the existing water supply system infrastructure; and there are potentially low long-term O&M costs.

The disadvantages are: uncertainty that the new well location will be sited outside the existing contaminated groundwater plume; uncertainty that the well will initially yield or be able to sustain the required pumping rates; the potential that continuous or long-term pumping operation could draw the contaminated plume toward this well; and high initial capital costs.

This alternative did not consider withdrawal from an existing municipal source because the infrastructure costs were considered too expensive.

Existing Well Retrofitting

The initial step in a potential Production Well retrofit project would be a hydrogeologic evaluation of the presence/absence of multiple water-bearing zones within the well and the groundwater quality conditions within those zones. This could be accomplished by the following:

Temporary removal of the Production Well pump;

- Perform a down-hole video survey to examine well condition and identify one or more lower fracture (water-bearing) zones, if any;
- Install an inflatable packer system to hydraulically isolate the lower zone(s); and
- Perform a moderate- to long-term pumping test to evaluate the yield of the lower zone and laboratory analysis of the groundwater quality (including carbon tetrachloride concentration) of groundwater samples collected from the lower zone.

The purpose of this well retrofit investigation would be to evaluate whether a retrofit of the Production Well that consisted of sealing off a highly-contaminated upper zone — if it exists within the Production Well — could improve well water production quality while maintaining adequate well yield. Ideally, this would be performed during spring when carbon tetrachloride concentrations in groundwater historically have been highest.

If evaluated to be feasible, this investigation could be followed by implementation of permanent retrofit improvements to the Production Well and/or drilling of a new well in close proximity to the Production Well, both intended to isolate the identified water-bearing zone with acceptable groundwater quality conditions.

However, based on our review of the water well report for the Production Well, it is our opinion that the hydrostratigraphic information provided for the Production Well (while not extremely detailed) is not favorable for the presence of multiple water-bearing zones separated by one or more efficient confining layers. As such, it is our opinion that the likelihood for a successful well retrofit program is low.

Water Treatment

Current information in the literature suggests the most viable and cost-effective treatment methodologies for carbon tetrachloride in groundwater are granular activated carbon (GAC) adsorption, air stripping, or a combination of both. Other alternatives considered but excluded because of cost or effectiveness included reverse osmosis, high-energy electron beam, and membrane air stripping. The GAC adsorption and air stripping technologies remove more than 99 percent of the influent carbon tetrachloride concentrations; the excluded alternative treatments remove between 70 percent and 98 percent of the carbon tetrachloride.

GAC adsorption is a relatively straightforward process, whereby influent water is directed through a series of large vessels (tanks) filled with GAC. The GAC is about the size of coarse sand (maximum $\frac{1}{4}$ inches particle size) and adsorbs carbon tetrachloride and other VOCs until the adsorptive capacity of the GAC to uptake carbon tetrachloride is full. At a pumping rate of 50 gpm, the retention time to reduce a carbon tetrachloride concentration of $100 \, \mu \text{g/L}$ to $1 \, \mu \text{g/L}$, is about 20 minutes; therefore, the collective capacity of the tanks should conservatively be $1,000 \, \text{gallons}$. Considering the pore space in GAC vessels is about 25 percent, the tanks total capacity should be the equivalent volume of $4,000 \, \text{gallons}$, or about 500 cubic feet. Vessels typically are sited in series, and as GAC in a vessel becomes spent (full adsorptive capacity), that vessel is taken off-line and the GAC in that vessel is removed, reactivated, and replaced.

Air stripping typically is conducted using packed tower aeration whereby water cascades through a tall tower or a series of trays as air is forced up through the air stripper equipment. This equipment

typically consists of several polyethylene trays, each with numerous small holes to allow water to drop and forced air to rise. The concept is to strip the volatile organic compounds from the water through rigorous aeration and retention time. At a pumping rate of 50 gpm, the retention time to reduce a carbon tetrachloride concentration of 100 μ g/L to 1 μ g/L, is about 2 minutes. The off-gas vapors typically require treatment.

A further treatment alternative is air stripping followed by GAC adsorption; the GAC typically is used as a polishing treatment option.

The three water treatment alternatives below were evaluated using GAC adsorption, air stripping, and a combination of both treatment methodologies (thus, nine unique options listed in Table 6). All treatment alternatives are based on continuing the use of the current Production Well.

Treatment options will require pilot testing, ongoing monitoring, and operator training and certification.

In-Flow Treatment

This alternative generally includes continuous treatment; specifically, treatment when water is being pumped from the supply well. Water treatment systems are placed in-line either upstream or downstream from the pump house. The additional advantage of this type of system is that all water is treated before use; however, one disadvantage is the uneven flow rates which could result in excess energy being utilized to over-treat water during slower flow rates.

Bulk Treatment

This alternative includes treatment for large volumes of water in a short period of time, likely timed to occur before the treated water supply is fully depleted. Water treatment systems are placed inline upstream of the water reservoirs such that water is treated for a period of time until the three reservoirs are filled. The advantages of this type of system are lower energy uses and more optimal use of the treatment systems (by treating at optimal flow rates). A disadvantage is that this type of system requires more manual operation to time the treatment based on water usage.

Treatment with Separate Distribution

This alternative essentially reduces the amount of water that needs to be treated and only treats water to be used for consumptive purposes; water used for irrigation purposes would not be treated. The advantages of this alternative are that much less water needs to be treated and the treatment systems will last longer and require less 0&M. The disadvantages are the three reservoirs cannot simultaneously be used for either domestic or irrigation use, because reservoirs need to contain either treated or untreated water. This limits the capacity and optimization of the system. Furthermore, untreated water would be used for irrigation purposes and although there might be a low risk to human health and the environment with this scenario because the carbon tetrachloride would quickly volatilize under irrigation pressure system and high heat, untreated water would still be discharged to the ground. This alternative could be conducted either with inflow treatment or bulk treatment.

RECOMMENDATIONS

New Water Supply Well

In our opinion, the best long-term alternative is for the FSD to attempt to locate another water supply source outside the contaminated carbon tetrachloride plume. The most likely well location would be west of the high school and near the existing water supply infrastructure. Based on the relatively limited subsurface and sampling data collected during this phase of investigation, this location could be outside of the observed carbon tetrachloride plume, yet might still encounter sufficient CRBG thickness to potentially sustain a viable Production Well. Costs could be less than the existing grant from DOH. However, it should be understood there is significant uncertainty and risk associated with this alternative including unknown hydrostratigraphy in this location, uncertain short- and long-term well yield, uncertainty regarding the plume location relative to that area, and the possibility of drawing the plume further west through pumping.

If FSD is comfortable with the risk associated with this option, we believe the best alternative would be to attempt a replacement well in the area identified in Figure 8. Drilling observation and subsequent pumping tests should be utilized to evaluate whether well yield appears to be sufficient for school needs and groundwater quality conditions appear promising. This option also has the potential, if the well's capture zone is sited outside of the contaminant plume, for the lowest long-term O&M costs. Furthermore, it is possible that the current Production Well could be utilized by others (such as regulatory agencies) to withdraw and remediate the contaminated groundwater.

Water Treatment

If the FSD is not comfortable with the level of risk associated with new well drilling, a less risky option is to treat the incoming water from the Production Well. Remedial equipment can remove carbon tetrachloride to levels less than the MCL using granular GAC, air stripping, or a combination of both. In this case, we recommend that the air stripping alternative be considered, because it appears to have less long-term O&M costs than carbon treatment. However, FSD should understand that an inherent disadvantage to treatment is the long-term operation/cost of remedial equipment and the manual labor/cost necessary to operate and maintain the treatment equipment.

Combined Option

Based on water use data provided by FSD, it is possible that a new well could supply the school's consumptive use needs at a flow rate of less than 10 gpm. One option for consideration, if regulatory agencies allow the Production Well to operate after a new well is brought on-line, is to use a new well for consumptive use and the current Production Well solely for irrigation use. A flow rate of less than 10 gpm in a new well is less likely to mobilize the carbon tetrachloride well to the west. The current Production Well has the capacity to meet irrigation needs and operation would have the added benefit of drawing the carbon tetrachloride plume to the south. It is possible that both wells would not be required to operate simultaneously.

Water extracted from the Production Well would have to remain separate from water extracted from the new well to minimize the potential for carbon tetrachloride to enter the consumptive use system. This option will require modification to the water supply system infrastructure. Treatment

of the irrigation water might be necessary depending on regulatory input and groundwater quality. However, the FSD could use proposed treatment options listed herein or possibly could discharge the irrigation water untreated. Another option could be to use the existing sanitary treatment systems to remediate carbon tetrachloride in groundwater.

LIMITATIONS

We have prepared this report for the exclusive use of David Evans & Associates, Inc. and the Freeman School District No. 358 (FSD) in Freeman, Washington. FSD may distribute copies of this report to authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to this report.

Any electronic form, facsimile or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to the Appendix D titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

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Table 1

Historic Carbon Tetrachloride Results Associated with the Production Well¹

Freeman School District Freeman, Washington

Date	Concentration of Carbon Tetrachloride (ug/L)	Laboratory
05/27/92	<0.50	WA State Public Health Laboratories
11/13/92	<0.50	Spectra Laboratories
01/30/01	0.70	Amtest, Inc - Redmond
03/22/01	0.70	Amtest, Inc - Redmond
07/11/01	<0.50	Amtest, Inc - Redmond
06/20/02	1.40	Amtest, Inc - Redmond
08/12/03	<0.50	Amtest, Inc - Redmond
11/16/04	1.64	Anatek Labs, Inc. Spokane
05/31/06	<0.50	Anatek Labs, Inc. Moscow
04/30/07	2.31	Anatek Labs, Inc. Moscow
04/03/08	7.78	Anatek Labs, Inc. Spokane
05/20/08	2.34	Anatek Labs, Inc. Spokane
09/12/08	2.14	Anatek Labs, Inc. Spokane
11/13/08	3.72	Anatek Labs, Inc. Spokane
02/26/09	1.66	Anatek Labs, Inc. Spokane
06/25/09	1.80	Anatek Labs, Inc. Spokane
11/04/09	3.28	Anatek Labs, Inc. Spokane
04/28/10	4.29	Anatek Labs, Inc. Spokane
08/18/10	2.22	Anatek Labs, Inc. Spokane
10/27/10	3.13	Anatek Labs, Inc. Spokane
03/31/11	3.90	Summit Environmental
06/22/11	<0.50	Summit Environmental
09/21/11	<0.50	Summit Environmental
12/07/11	<0.50	Summit Environmental
03/21/12	5.90	Summit Environmental
04/19/12	7.20	Summit Environmental
06/14/12	2.10	Summit Environmental
09/05/12	3.10	Summit Environmental
12/12/12	8.00	TestAmerica Savanna
EPA MCL ²	5.00	

Notes:

¹Samples collected by Freeman School District as part of their source approval program are included herein. This table does not include the sample collected as a component of this study.

²Cleanup Levels based on the Environmental Protection Agency (EPA) maximum contaminant level (MCL). Bold indicates analyte detection above MCL

ND = Not detected at a concentration exceeding the respective laboratory reporting limit.

Table 5

Summary of Analytical Results and Groundwater Quality Parameters

Freeman School District Freeman, Washington

	1.1.		Sample Number	r and Sample Date		
esteron	Target Levels	W20 01/21/13	W26 01/21/13	Freeman Store 01/21/13	W30 01/25/13	Production Well 01/25/13
pH ¹ .	NA	6.20	7.00		7.69	7.86
Temperature ¹ (°C)	NA	8.30	9.79		9.99	10.41
Specific Conductivity ² (mS/cm)	NA	0.2724	0.2549		0.1956	0.0012
Dissolved Oxygen ² (mg/l)	NA	1.09	7.49	17 A 12 P	1.44	5.85
Turbidity ² (ntu)	NA	195.2	4.953		0.0	9.169
Oxidation-Reduction Potential ² (mV)	NA	-2	-75		13	53
The following analyzed by EPA Method	18260C. All result	s are reported in p	ıg/L.			
Dichlorodifluoromethane		ND	ND	ND	ND	ND
Chloromethane		ND	ND	ND	ND	ND
Vinyl Chloride	$0.2^2/2^3$	ND	ND	ND	ND	ND
Bromomethane		ND	ND	ND	ND	ND
Chloroethane		ND	ND	ND	ND	ND
Trichlorofluoromethane		ND	ND	ND	ND	ND
1.1-Dichoroethene		ND	ND	ND	ND	ND
Carbon disulfide		ND	ND	ND	ND	ND
Methylene chloride	5 ²	ND	ND	ND	ND	ND
Acetone		ND ⁴	ND ⁴	ND ⁴	ND ⁴	ND ⁴
trans-1,2-Dichloroethene	100 ³	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 ²	ND	ND	ND	ND	ND
1,1-Dichloroethane	12 0 0 0 0	ND	ND	ND	ND	ND
cis-1,2-Dichloropropane		ND	ND	ND	ND	ND
Bromochloromethane		ND	ND	ND	ND	ND
Chloroform	70 ⁶	2.04	ND	ND	ND	1.28
Carbon tetrachloride	5 ³ ·	21.2	ND	ND	ND	22.0
1,1,1-Trichloroethane	200 ³	ND	ND	ND	ND	ND
2-Butanone	200	ND	ND	ND	ND	ND
1,1-Dichloropropene		ND	ND	ND	ND	ND
Benzene	5 ^{2,3}	ND	ND	ND	ND	ND
1,2-Dichloroethane (EDC)	5 ^{2,3}	ND	ND	ND	ND	ND
Trichloroethene		ND	ND	ND	ND	ND
Dibromomethane		ND	ND	ND	ND	ND
1,2-Dichloropropane	Ser Serious des very fix s	ND	ND	ND	ND	ND
Bromodichloromethane	0 ⁶	ND	ND	ND	ND	ND
cis-1,3-Dichloropropane	The Skienting of Follow	ND	ND	ND	ND	ND
Toluene	1000 ^{2,3}	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	1000	ND	. ND	ND	ND	ND
trans-1,3-Dichloropropene		ND	· ND	ND	ND	ND
Tetrachloroethene		• ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5 ³	ND	ND	ND	ND	· ND
Dibromochloromethane	60 ⁶	ND	ND	ND	ND	ND
1,3-Dichloropropane		ND	ND	ND	ND	ND
1,2-Dibromoethane		ND	ND	ND	ND .	ND
2-Hexanone		ND	ND	ND	ND	ND
2-1 IC/0110116	700 ^{2,3}	אוט	110	110	5	,,,,,

File No. 2958-003-00 Table 5 | March 14, 2013



			Sample Number	and Sample Date		
	Target Levels	W20 01/21/13	W26 01/21/13	Freeman Store 01/21/13	W30 01/25/13	Production Well 01/25/13
Chlorobenzene	100 ³	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane		ND	ND	ND	ND	ND
m,p-Xylene	1000 ^{2.5}	ND	ND	ND	ND	ND
o-Xylene	1000 ^{2,5}	ND	ND	ND .	ND	ND
Styrene	100 ³	ND	ND	ND	ND	ND
Bromoform	O ⁶	ND	ND	ND	ND	ND
Isopropylbenzene		ND	ND	ND	ND	ND
n-Propylbenzene		ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane		. ND	ND	ND	ND	ND
Bromobenzene		ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene		ND	ND	ND	ND	ND
2-Chlorotoluene		ND	ND	ND	ND	ND
1,2,3-Trichloropropane		ND	ND	ND	ND	ND
4-Chlorotoluene		ND	ND	ND	ND	ND
tert-Butylbenzene		ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene		ND	ND	ND	ND	ND
sec-Butylbenzene		ND	ND	ND	ND	ND
p-Isopropyltoluene		ND	ND	ND	ND	ND
1,3-Dichlorobenzene		ND	ND	ND	ND	ND
1,4-Dichlorobenzene		ND	ND	ND	ND	ND
n-Butylbenzene		ND	ND	ND	ND	ND
1,2-Dichlorobenzene		ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.23	ND	ND	ND	ND	ND
Hexachlorobutadiene		ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	70 ³	ND	ND	ND	ND	ND
Naphthalene		ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene		ND	ND	ND	ND	ND

Notes:

Bold indicates analyte detection above MCL

ND = Not detected at a concentration exceeding the respective laboratory reporting limit. NE = Not Established; NA = Not Applicable;

ug/l = micrograms per liter;°C = degrees Celsius; mS/cm = milliSiemens per centimeter;ntu = nephelometric turbidity units; and mV = millivolts

¹Water quality measurements collected at the conclusion of well purging after water quality stabilization. Negative turbidity values reported as 0.0 ntu.

²MTCA Method A Cleanup Level for Groundwater

³EPA Maximum Contaminant Levels (MCLs) for Drinking Water

⁴Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.

 $^{^{5}\}text{1,000}$ ug/L cleanup level is for Total (m,p+o) Xylenes.

⁶EPA Maximum Contaminant Level Goal (MCLG)

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Table 6

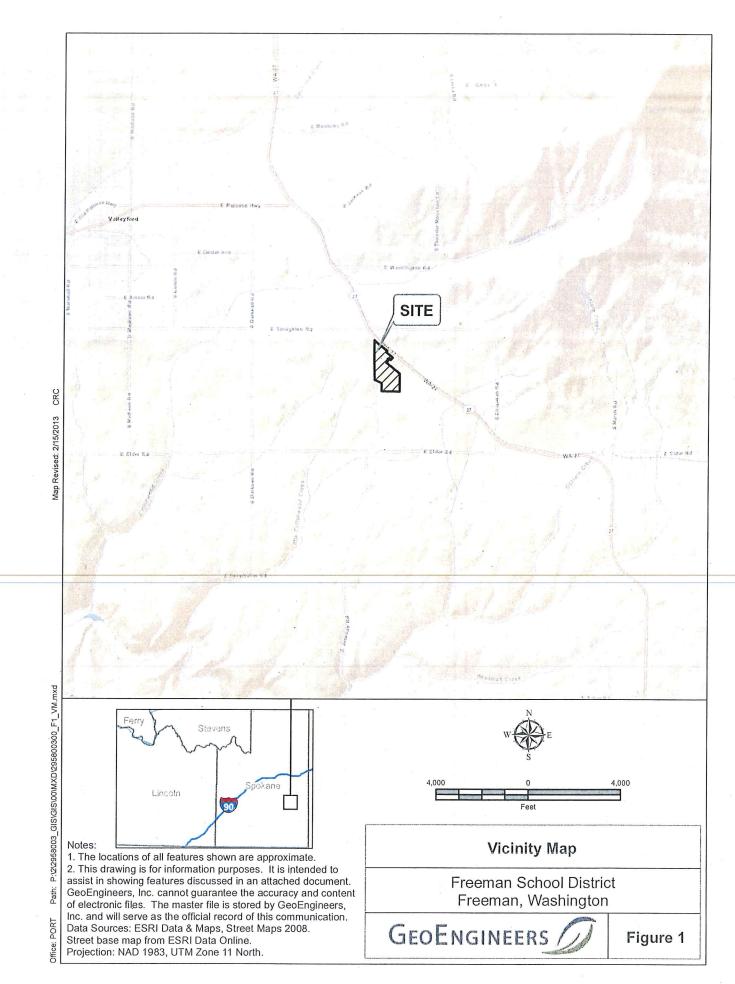
Alternatives Analysis Freeman School District Freeman, Washington

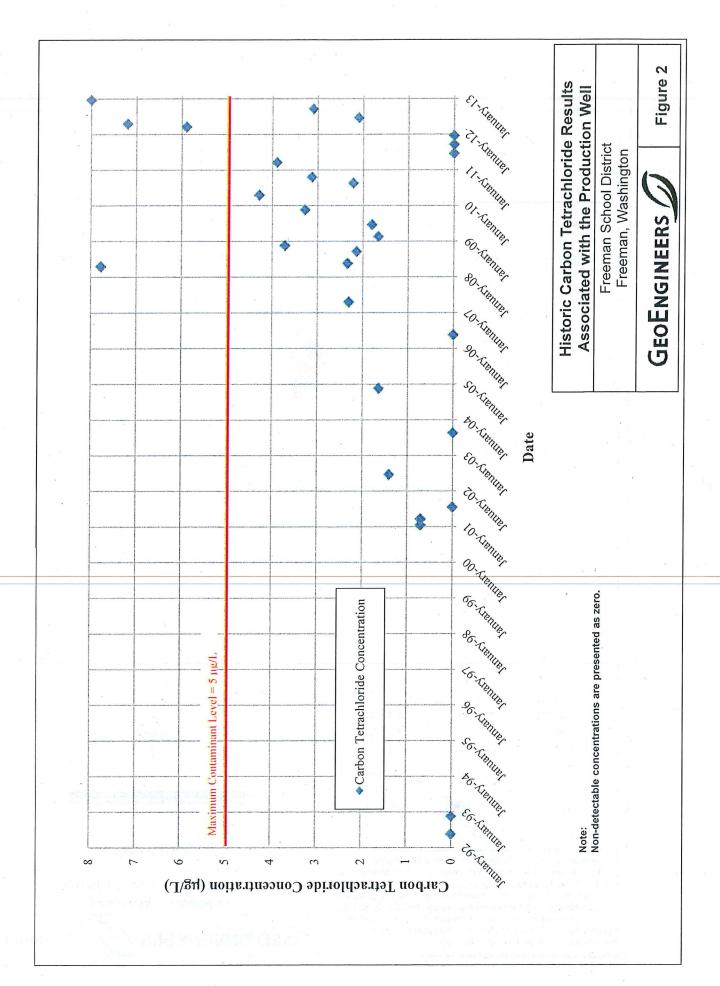
Method	Initial Capital Cost	Maintenance Cost	Effectiveness	Permits Needed	Time to Implement	Time to Complete	Advantages	Disadvantages
New Well Siting	\$80,000. Includes \$20,000 for well installation, \$30,000 for testing, \$30,000 for engineering	\$1,000/yr (maintenance)	Medium High	New Well Permit	< 2 Months	Immediate	Well can be located near storage tanks; low 0&M costs; water treatment potentially not necessary	Capital costs; uncertainty regarding plume location; uncertainty regarding yield; operation could draw contaminated plume
Existing Well Modification	\$40,000. Includes \$20,000 for retrofit contractor and \$20,000 for engineering	\$1,000/yr (maintenance)	Low	None	< 2 Months	Immediate	Minimal infrastructure modification	Hydrogeology suggests infeasible; could cause vertical migration of carbon tetrachloride
In-Flow Treatment w/ GAC	\$30,000. Includes \$15,000 for treatment equipment, \$10,000 for installation, \$5,000 for engineering	\$40,000/yr. Roughly \$3,000/month for new carbon plus \$4,000 for maintenance labor	Medium	None	< 3 Months	Years	Proven treatment system; Long-term maintenance; low capital costs; system consistently running which maintenance costs than reduces labor costs system constantly runnin (reduces labor costs)	Long-term maintenance; uneven flow rates; higher naintenance costs than other treatment options: system constantly running (reduces labor costs)
In-Flow Treatment w/ Air Stripping \$75,000. Includes \$30,000 for treatm equipment, \$25,00 installation, \$20,000 engineering	\$ \$75,000. Includes \$30,000 for treatment equipment, \$25,000 for installation, \$20,000 for engineering	\$20,000/yr. Includes \$1,000/month for electrical plus \$8,000 maintenance labor	Medium High	Possible Air Discharge	< 3 Months	Years	More effective than carbon; moderate capital uneven flow rates; high costs; moderate maintenance costs than maintenance costs; moderate maintenance costs; system constantly running potential for biofouling; system constantly runn freduces labor costs)	Long-term maintenance; uneven flow rates; higher maintenance costs than other treatment options; potential for biofouling; system constantly running freduces labor costs)
In-Flow Treatment w/ Combined	\$100,000. Includes \$45,000 for treatment equipment, \$30,000 for installation, \$25,000 for engineering	\$30,000/yr. Includes Medium High \$1,000/month electrical, \$10,000/yr in carbon, \$8,000 maintenance labor	Medium High	Possible Air Discharge	< 4 Months	Years	More effective than Long-term maintenance; capital costs; higher maintenance costs; capital costs; higher system constantly running maintenance costs than (reduces labor costs) potential for biofouling	Long-term maintenance; uneven flow rates; higher capital costs; higher capital costs; higher maintenance costs than other treatment options;
Bulk Treatment w/ GAC	\$30,000. Includes \$15,000 for equipment, \$15,000 for engineering and installation	\$30,000/yr. Roughly \$2,000/month for new carbon plus \$6,000 maintenance labor	Medium	None	< 3 Months	Years	Proven treatment system; Long-term maintenance; low capital costs; efficient less effective use of use of treatment reservoirs, high maintenance costs; morr labor intensive	Long-term maintenance; less effective use of reservoirs, high maintenance costs; more labor intensive

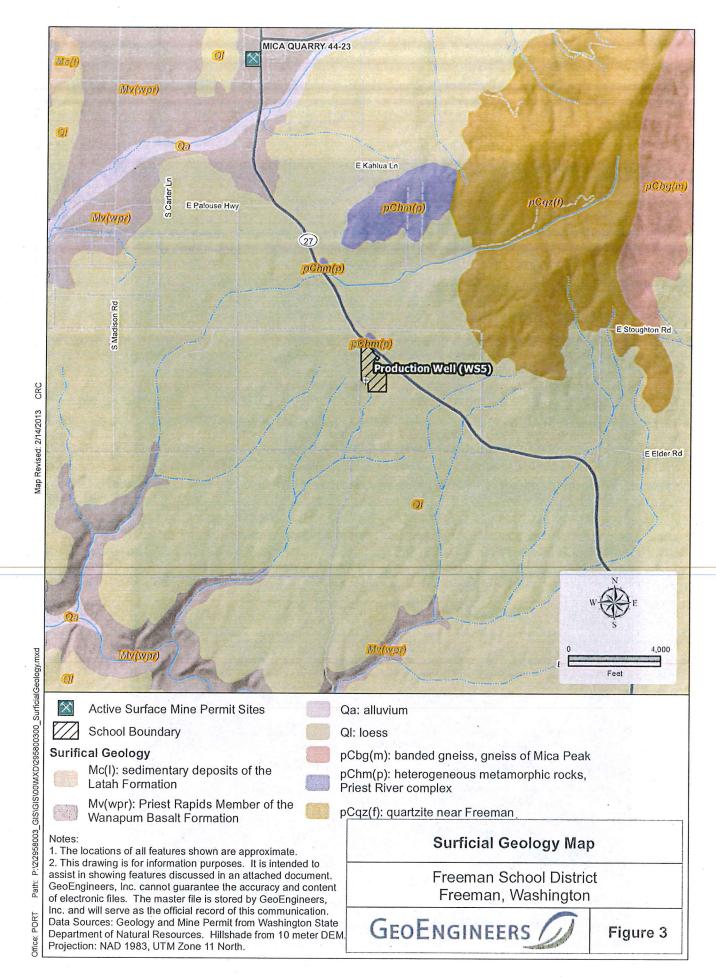
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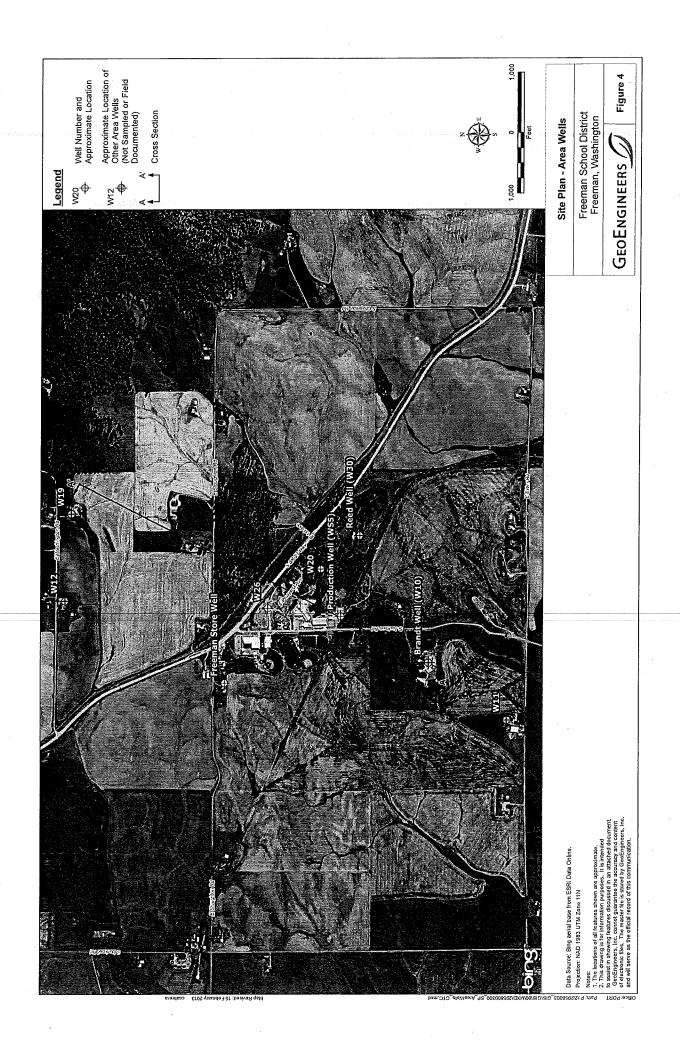
		以 新		Permits	Time to	Time to		
Method	Initial Capital Cost	Maintenance Cost	Effectiveness	Needed	Implement	Complete	Advantages	Disadvantages
Bulk Treatment w/ Air Stripping	\$75,000. Includes	\$15,000/yr. Includes	Medium High	Possible Air	< 3 Months	Years	More effective than	Long-term maintenance;
	\$30,000 for treatment	\$1,000/month for		Discharge			apital	less effective use of
	equipment, \$25,000 for	electrical plus \$3,000					100	reservoirs; high
	installation, \$20,000 for	maintenance labor					maintenance costs;	maintenance costs; more
	engineering						efficient use of treatment	labor intensive; potential
							equipment	for biofouling
Bulk Treatment w/ Combined	\$100,000. Includes	\$25,000/yr. Includes Medium High	Medium High	Possible Air	< 4 Months	Years	More effective than	Long-term maintenance;
	\$45,000 for treatment	\$1,000/month		Discharge			carbon or air stripper	less effective use of
	equipment, \$30,000 for	electrical, \$5,000/yr in					alone; moderate	reservoirs, higher capital
	installation, \$25,000 for	carbon, \$8,000					maintenance costs;	costs; high maintenance
	engineering	maintenance labor					efficient use of treatment costs; more labor	costs; more labor
							equipment	intensive; potential for
TV N					1			biofouling
Separate Treatment w/ GAC	\$30,000. Includes	\$20,000/yr. Roughly	Medium	None .	< 3 Months	Years	Proven treatment system; Long-term maintenance;	Long-term maintenance;
	\$15,000 for treatment	\$3,000 every other					low capital costs; less	least effective use of
	equipment, \$10,000 for .	month for carbon plus		1			water to treat	reservoirs, high
	installation, \$5,000 for	\$2,000 maintenance						maintenance costs; not
	engineering	labor						treating irrigation water
Separate Treatment w/ Air	\$75,000. Includes	\$15,000/yr. Includes	Medium High		< 3 Months	Years	More effective than	Long-term maintenance;
Stripping	\$30,000 for treatment	\$1,000/month for		Discharge			carbon; moderate capital	least effective use of
	equipment, \$25,000 for	electrical plus \$3,000				ı	costs; moderate	reservoirs, high
	Installation, \$20,000 for	maintenance labor					maintenance costs; less	maintenance costs; not
	engineering						water to treat	treating irrigation water
Separate Treatment w/ Combined \$100,000. Includes	\$100,000. Includes	\$25,000/yr. Includes Medium High	Medium High	.=	< 4 Months	Years	More effective than	Long-term maintenance;
	\$45,000 for treatment	\$1,000/month		Discharge			carbon or air stripper	least effective use of
	equipment, \$30,000 for	electrical, \$5,000/yr in					1	reservoirs, higher capital
	Installation, \$25,000 for	carbon, \$8,000					maintenance costs; less	costs; high maintenance
	engineering	maintenance labor					water to treat	costs; not treating
THE PERSON NAMED OF TAXABLE PARTY OF TAX				The second second				irrigation water

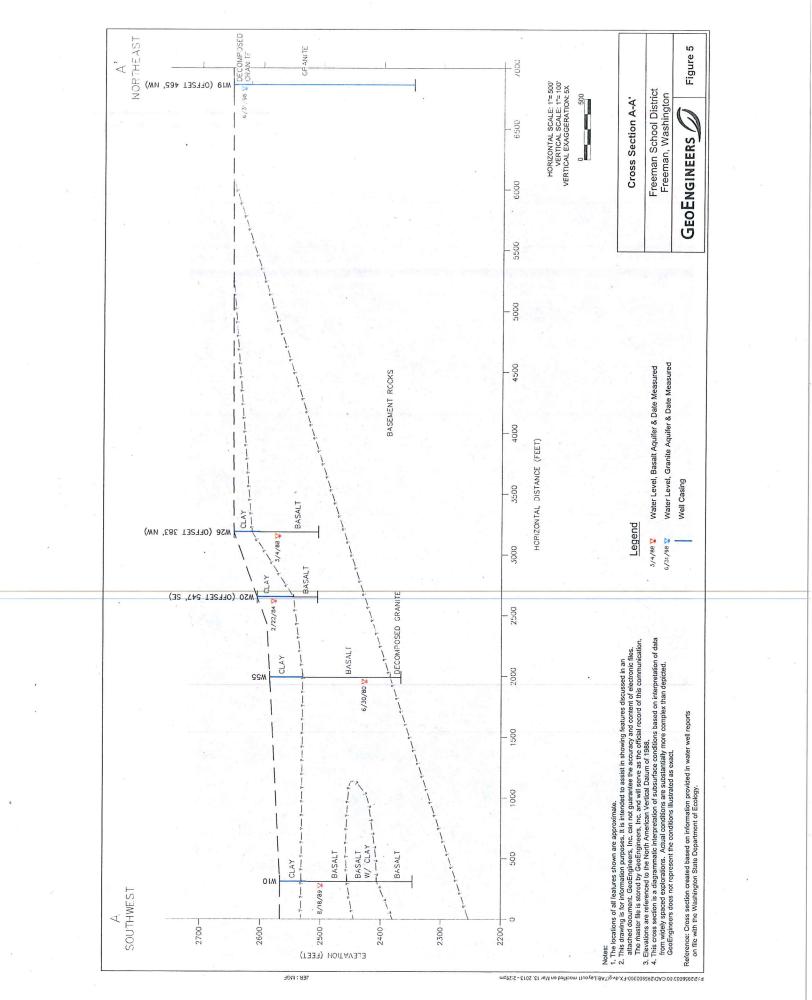
GEOENGINEERS 1









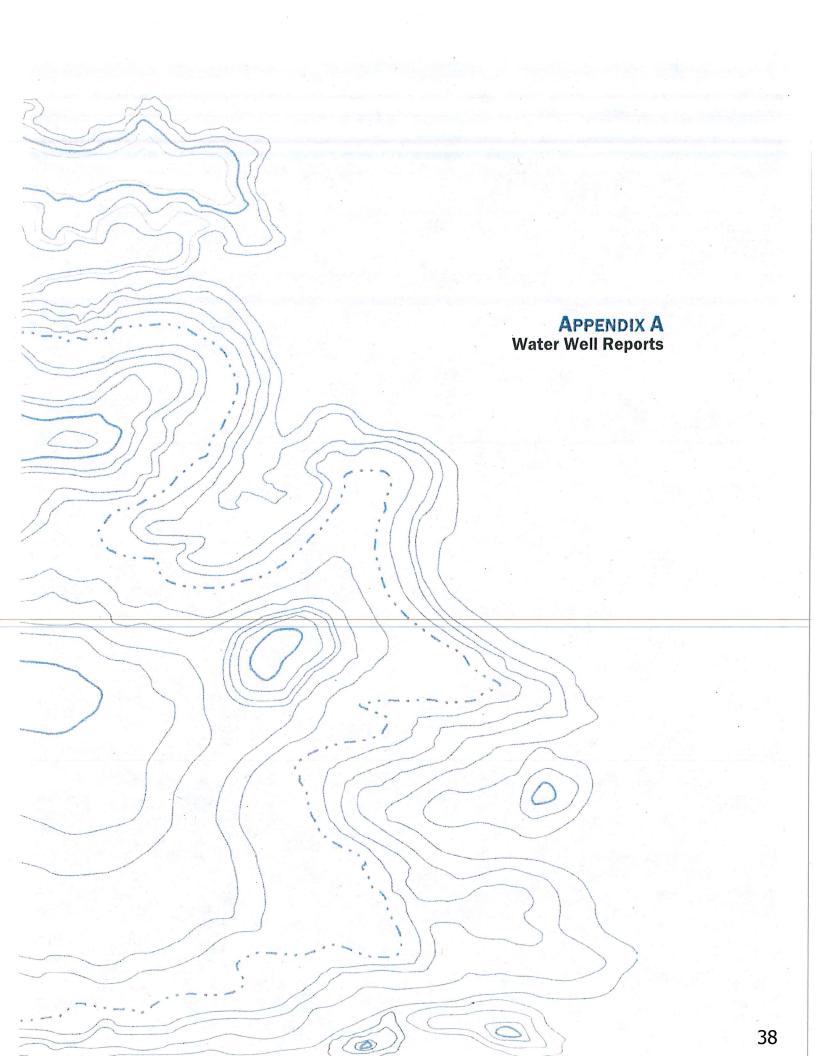








GEOENGINEERS D



WATER WELL REPORT

WS1

Application No.

STATE OF WASHINGTON Permit No.....
FREEMAN SCHOOL DISTRICT #358 Address Freeman, Washington 99015

(1) OWNER: Name FREEMAN SCHOOL DISTRICT #358	Address Freeman, Washington 99015		
(2) LOCATION OF WELL: County Spokene	_ SW ¼ NW ¼ Sec.1 T. 23	3 R.	14E _{W.M.}
raying and distance from section or subdivision corner			
(3) PROPOSED USE: Domestic [] Industrial [] Municipal []	(10) WELL LOG:		
School District Irrigation Test Well Other X	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and hature of t stratum penetrated, with at least one entry for each of	l and struc he materic range of f	cture, and il in each formation.
4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM	TO
New well 🚨 Method: Dug 🗌 Bored 🗍	Top soil, grown, silty	01	21
Deepened □ Cable □ Driven □ Reconditioned □ Rotary 五 Jetted □	Chay, tan, hard	21	141
Reconditioned [] Rotary 包 Jetted []	Blay, moist, tan	14'	231
(5) DIMENSIONS: Diameter of well	Quartz, heav fract	231	271
(5) DIMENSIONS: Diameter of well inches. Drilled 375 ft. Depth of completed well 375 ft.	Basalt, decom, brown & green-black la		291
The state of the s	Basalt, decom, mined w/gray clay, mois	t 29'	391
(6) CONSTRUCTION DETAILS:	Basalt, heav fract, brown, Kairly hrd	391	44 1
Casing installed: 6 "Diam. from 11 ft. to 62 ft.	Basalt, fract, brown-blank, med hrd	44'	481
Threaded [] Diam. from ft. to ft.	Basalt, fract, blok, m hrd, water 2GPM	481	55*
Welded 🔼 Plam. from ft. to ft.	Basalt, heav fract, black, soft	55*	591
Perforations: Yes 🗆 No 🛣	Basalt, occas fract, gray-blok, hard	591	981
Type of perforator used	Basalt, fract, black, med hrd	981	III
SIZE of perforations in. by in.	Shele, tank green, firm	1111	1231
perforations from ft. to ft.	hale, olive green, firm	123'	125'
perforations from it, to it,	Basalt, brown, fairly hard	125	1371
perforations from ft, to ft,	Clay, brown, firm	137	1681
Screens: Yes No X	Baselt, fract, blck,m hrd, water 3GPM	1681	180
Manufacturer's Name	Basalt, occas fract, blok, hard	1801	188
Type Model No Model No	Basalt, heav fract, brn, m hrd, Wat. 5GF		194
Diam	Shale, brown, firm	194	2011
Diditi Dibt size	Clay, moist, rusty brown	201	222
	Clay, moist, white	211	214'
	Clay, moist, brown	214	2181
	Clay, moist, dark gray	218	2231
EX DUITAGE BULL YES ALL INDIT TO WHAT GEDUIT 16.	Clay, moist, brown	223	234 '
	Clay moist, redish-orange	234	241'
	Clay, moist, tan	241	259*
Method of sealing strata off	Quartz, purple & white, soft	2591	2631
	Granite, heav fract, med hrd	263	2701
	Granite, occas fract, med hrd	270	2861
	Granite, heav fract, heavily white		
(8) WATER LEVELS: Land-surface elevation > 5 (00)	quartz content, med hard	286	3281
Static level	Clay, moist, white, w/small layers of		
Artesian pressurelbs. per square inch Date	white wuartz sand	328	343
Artesian water is controlled by(Cap, valve, etc.)	Quartz, fract, white, w/mica flakes,		
	med hard	343	348
lowered below static level	Quartz, purple & white, hard Work startedOct101973 CompletedOc	548	375* 19.7.3
Was a ROUNT test mader 1 es 25. 17 who in the same and th	WELL DRILLER'S STATEMENT:		
Yield: 10 gal./min. with 132 ft. drawdown after 1 hrs.	•		
11 11 n n n 1 1	This well was drilled under my jurisdiction as true to the best of my knowledge and belief.	nd this r	eport is
	with the me best of my knowledge and benefit		
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	NAME ZINKGRAF WELL DRILLING CO	MPANY	
Time Water Level Time Water Level Time Water Level	NAME	ype or pri	nt)
		_	
	Address E. 1606 Sharp, Spokane, Wash	19920	12
	$0 \sim 1.0^{\circ}$	1	
liler testgal./min. withft, drawdown afterhrs.	[Signed] [Mea] [Well Driller]	Ĺ	
Artesian flowgai./min. withg.p.m. Date			
Temperature of water	License No. 544 Date Oct.	17	19.73
.		•	
(USE ADDITIONAL SH	eets if necessary)		-

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8. F. No. 7356-OS-(Rev. 4-71).

WATER WELL REPORT No Factor No STATE OF WASHINGTON WS4

(1) OWNER: Name FREEMAN SCHOOL	Address FREEMAN WA.	***************************************
(2) LOCATION OF WELL: County SPOKANE	NE W NE W Sec. 2 T	7 N. R. 4 4 W.M
ing and distance from section or subdivision corner #M: Sa.	JACKSON + STOUGHTON ROS. 2	3
(b) PROPOSED USE: Domestic Industrial Municipal	(10) WELL LOG:	
Irrigation [] Test Well [] Other []	Formation: Describe by color, character, size of materic show thickness of aquifers and the kind and nature of stratum penetrated, with at least one entry for each c	il and structure, and the material in each
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM TO
New well [] Method: Dug [] Bored []	Chand and to and	127 253
Deepened □ Cable A Driven □ Reconditioned ■ Rotary □ Jetted □	that appared to be decomposed	77.7.25
	granit that had fallow apart	
(5) DIMENSIONS: Diameter of well inches. Drilled 256 tt. Depth of completed well 256 tt.	Kingellow discolution	
•	of water with large wall	
(6) CONSTRUCTION DETAILS: 4"ADDED TO TOP	- carrie - off.	
Diani, Month and Market Market and Market Ma		
Threaded " Diam. from		
D. C. At	No.	
Perforations: Yes No To		
SIZE of perforations in. by in.		
perforations from ft. to ft.	1	
perforations from		
~		
Screens: Yes No No Name.		
Type Hodel No		
Diam. Slot size from ft. to ft. to ft.		
Gravel placed from	No.	
Surface seal; ye No To what depth?		
Did any strata contain unusable water? Yes No		
Type of water? Depth of strata		
Method of scaling strate off		
(7) PUMP: Manufacturer's Name		
Type: HP HP.		
(8) WATER LEVELS: Land-surface elevation 2550 above mean sea level		
Static level 66 tt. below top of wall Date 9-17-73		
Artesian pressurelbs. per square inch Datel Artesian water is controlled by(Cap, valve, etc.)		
		
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Work started	19
Was a pump test made? Yes No I if yes, by whom?	WELL DRILLER'S STATEMENT:	
Yield: gal/min with ft. drawdown after hrs.	This well was drilled under my jurisdiction a	-d 464a
11 11 11	true to the best of my knowledge and belief.	ng tura report re
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	ADME DOLLING	
Time Water Level Time Water Level Time Water Level	(Person, firm, or corporation) (T	ype or print)
	Address Box 765 PH3 Spata	u Wa
es to province and the second	China G. Ray	Just
Lest 10 gal/min. with 10 ft. drawdown after 3 hrs.	[Signed] (Well Driller)	COUV
Artesian flow	License No. 223-52-6400 Date 8-2	A72
Temperature of water 4.1 Was a chemical analysis made? Yes No No No No No No No N		
1/1/2 1/1/1	<i>= 033-</i>	

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WATER WELL REPORT STATE OF WASHINGTON

Fradue 110	U	12	1 }
The service energy of the co	1.55.4		
WS5			
1100			

Application No.

rhird Copy — Driller's Copy	STATE OF W	VASHINGTON Permit No		
(1) OWNER: Name Freeman School	Dist. # 358	Address Freeman, Washington 99	015	
ELOCATION OF WELL: County ST	nokane	SW , NW , sec 1 T 2 ath of Hiway 27 on Jackson Rd	4 _{N., 14}	AZW.M
3) PROPOSED USE: Domestic [Industria		(10) WELL LOG:		74
Irrigation [] Test We	Other 🔯	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of the stratum penetrated, with at least one entry for each ch	and stru he materi ange of	cture, and al in each formation
1) TYPE OF WORK: Owner's number of we (if more than one)	***************************************	MATERIAL	FROM	TO
New well 🗵 Method; Du Deepened □ Ca	ıg □ Bored □ able □ Driven □	<u>overburden</u>	_ 0	5
200,0000	otary 🕅 Jetted 🗌	7 7 7-017-077		ļ
5) DIMENSIONS: Diameter of well Drilled	6 inches.	clay brown, yellow white black	5	51
O) CONSTRUCTION DETAILS:		grey basalt med hard	51	105
Casing installed:6O	ft. to52 ft.			
Threaded	ft. to ft.	blue basalt hard	105	175
Perforations: Yes No		grey basalt	175	180
Type of perforator used	in.	hasalt shattered		
perforations from f	ft. to ft.	nillow lava	180	195
perforations from j	it. to ft. It. to ft.			
		quartite gravel	195	197
Screens: Yes No M Manufacturer's Name		(water bearing) decomposed granite	197	215
Type Model	1 No	decomposed Staute		612
Diam Slot size from	ft. to ft.			
Gravel placed from ft. to Surface seal: Yes 77 No To what dep	oth?52			
Material used in sealbentonite Did any strata contain unusable water?	Yes [] No ⊠	RECEIVED		
Type of water? Depth of s	trata	1/11/7 = 2004		
Method of sealing strata off		0.014 T O (38.)		
7) PUMP: Manufacturer's Name		SPOKAME REGIONAL OFFICE		
8) WATER LEVELS: Land-surface elevation above mean sea leve	1,			
tatic levelft. below top of well rtesian pressurelbs. per square inch	DateDU-QU			
totales water is controlled by				
9) WELL TESTS: Drawdown is amount lowered below static le	water level is evel	work started June 26, 19 80 Completed Jun	ie 30	1980
Vas a pump test made? Yes No X If yes, by who leld: gal./min. with ft. drawdown		WELL DRILLER'S STATEMENT:		
0 9 0 9 0 0	n n	This well was drilled under my jurisdiction a true to the best of my knowledge and belief.	nd this	report is
ecovery data (time taken as zero when pump turne measured from well top to water level) Time Water Level Time Water Level Time	i		ype or p	rint)
		Address Rt. 1 Box 185 Deer Park,	, Wn.	990
Date of test	n after3hrs.	[Signed] To Well Driller	1 20	
emperature of water49. Was a chemical analysis i	made? Yes 🗍 No 🏗	License No. 07.12 Date June	<u> </u>	, 19.80

(USE ADDITIONAL SHEETS IF NECESSARY)



Well Tagging Form



Unique Well Tag No: AHC RECORD VERIFICATION (check one) Well Report available (please attach this form to the well report and submit it to the Ecology Regional Office near PWSIN 26460 SOURCE OS Verification inconclusive Well Report not available WELL OWNERSHIP, IF DIFFERENT FROMWELL REPORT Last Name: City: LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT Well Address: **GPS** Latitude Topographic Map Longitude Survey Computer generated **Digital Altimeter** feet/meters (circle one) Elevation at land surface _ Topographic Map Other Additional information, if available: Location marked on topographic map (please attach)

Location marked on air photo (please attach)

1	E., d						Min	And the
	in a			FOR A	GENCY US	SE ONLY		
	- तानुन - ::	**************************************		WELLG	HARACT	RISTICS		
Physic	cal Desc	riplion of v	vell (size o	casing, type of well	, housing, etc.)			and the second
	UB	MER	51BC1	= out	INE IN	FENCE	DREA	
·						,		,
			•	•				
		ell identifica	_	CAP B	067	O S j		,
.: 								
Was s	upplen	्रि nental tag	needed	for ease of identi	ifvina well?	Yes	No ·	
		/as tag pla	•					
D	, C	: B	À	Scale 1:24	,000 (1"=2,000')	•		•
E	. F	G	Н		e location of the w	ell within the Sectio	n by drawing a dot	at that point.
M	: . L	·K	J					•
N	Р	Q	R		,			•
СОММІ	ENTS:	Segue						•
):						
			•	•		-	•	7.4.1
11767	30E	ERA		VMARHE	PESAUE	CES PRO	OF AM ON	
,/:					W-State	CESTRU	GRAIVI O	ALEYS
later Ri	ght #				Date Iss	ued		٠.
Circle O	Ine:	Applicati	ion	Permit	Certificate	Claim	Exempt	

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WATER WELL REPORT STATE OF WASHINGTON

Apı	olica	tion	No.

Third Copy — Driller's Copy STATE OF	WASHINGTON BATTLE NO.	
(1) OWNEB: Name(b) (6)	(b) (6)	Washing
g and distance from section or subdivision corner	SWW_SWW_sec357.24	4 N R 44
h		,
(3) PROPOSED USE; Domestic Ø Industrial □ Municipal □	(10) WELL LOG:	
[rrigation □ Test Well □ Other □	Formation: Describe by color, character, size of materia show thickness of aquifers and the kind and nature of t stratum penetrated, with at least one entry for each of	l and structu
(4) TYPE OF WORK; Owner's number of well (if more than one)	stratum penetrated, with at least one entry for each ci	
New well	MATERIAL	FROM
Despained	clay hard basalt	0
(5) DIMENSIONS: District of well 6	gray clay firm	25
Drilled 103	broken basalt with layers of cla	y 30
(6) CONSTRUCTION DETAILS:	porous basalt	42
	Porous basalt water firm basalt water	50 66 1
Casing installed:	- Trim bush t water	00 1
Welded 💆		
Perforations: Yes 20 No D P.V.C. Pipe Saw	seep at 30 to 42	
Type of perforator med	water at 50 to 103	
SIZE of perforations 1/4 in by 6 in in 80 perforations from 50 nt to 103 nt		
perforations from		
perforations from ft. to ft.		
Screens: уев □ No Ø		
Hanufacturer's Name		
Diam. Slot size from ft. to ft.		
Diam		
Gravel placed from	RECEIVED	
Material used in seal hentonite Did any strata contain unuable water? Yes No	JUL 1 7 1980	
Type of water! Depth of strata		
Method of sealing strata off.	DEPARTMENT OF ECOLOGY	
7) PUMP: Manufacturer's Name	SPOKANE REGIONAL OFFICE	
Туре:		
B) WATER LEVELS: Land-surface elevation 25/2.		
atic level		
Arterian water is controlled by		
(Cap, valve, etc.)		
Drawdown is amount water level is lowered below static level	Work started 6/10/ 1080 Completed 6/	11/ '
To a pump test made? Yes [] No [] If yes, by Whom?	WELL DRILLER'S STATEMENT:	11/
in the second of		
	This well was drilled under my jurisdiction and irue to the best of my knowledge and belief.	this repor
reovery data (time taken as zero when pump turned off) (water level measured from well top to water level)		•
Time Water Level Time Water Level Time Water Level	NAME American Drilling & Development (Person, firm, or corporation) (Type	Inc
	Address P.O. Box 14977 Spokane Wash	
	THE PARTY OF THE P	.i.119.con
ie of test	Signed] Market Carlow	
tesian flow	(Well Driller)	
	Icense No0688	, 19.8

7/17/80 MUSE ADDITIONAL EDIESTS IF HECESSARY)

82616

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WATER WELL REPORT

Start Card No. W061763

UNIQUE	WELL I.D.	·_AC	1247

	cond Copy — Owner's Copy rd Copy — Driller's Copy STATE OF W	VASHINGTON Water Flight Permit No.				
	OWNER: Name(b) (6)	_{tres.} (b) (6)				
(2)	LOCATION OF WELL: County SPOKANE.	- <u>NW 1/4 NW 1/4 Sec 02 t. 2</u>	3N N. R	44E_w		
(28	STREET ADDRESS OF WELL (or nearest address)					
(3)	PROPOSED USE: B Domestic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION				
	* · · DeWater Test Well D Other D	Formation: Describe by color, character, size of material and structure, and show thickness and the kind and nature of the material in each stratum penetrated, with at least one entrichange of information.				
(4)	TYPE OF WORK: Owner's number of well (If more than one)	MATERIAL	FROM	то		
	Abandoned	TOPSOIL	0	1		
	Reconditioned Rolary Jetted	BROWN CLAY	1	35		
(5)	DIMENSIONS: Diameter of well 6 Inches. Drilled 180 feet. Depth of completed well 180 ft.	BASALT WITH CLAY BASALT - BROKEN - BLACK	35 40	40 45		
		BASALT - BLACK - MEDIUM · ···	45	51		
(6)		BASALT - BLACK HARD	51	90		
	Casing installed: 6 Diam. from +2 ft. to 51 ft. Welded 4 Diam. from -40 ft. to 180 ft.	BASALT - BLACK - SOFT - BROKEN	90	125		
	Welded	CLAY - BLACK - HARD PAN	125	155		
		BASALT - BLACK - SOFT	155	175		
	Perforations: Yes No X	CLAY - BROWN - SOFT	175	180		
	SIZE of perforations in. by in.					
	perforations fromft. toft.					
	perforations fromft. toft.					
	perforations from	IN BEBUNEN				
	Screens: Yes No 🗌	13), 5 6 5 5 5 1 1 1 1 1	·			
4	Manulacturer's Name					
+	Diam, 4 Slot size 20 from 140 ft. to 180 ft.	DEC 2000				
	Diam. Slot size from ft. to ft.					
_	Gravel packed: Yes No X Size of gravel	EASTERN RECONAL OFFICE				
	Gravel placed fromft. toft.	1 CASTESSA SECTIONS OF THE SECTION O				
	Surface seal: Yes 🔼 No □ To what depth?4∩ ft.					
	Material used in seal BENTONITE					
	Did any strata contain unusable water? Yes 🗌 No 🔼					
	Type of water? Depth of strata					
	Method of sealing strata off					
(7)	PUMP: Manufacturer's Name					
	Туре: Н.Р					
(8)	WATER LEVELS: Land-surface elevation above mean sea level ft.	Work Started 12-6-00 19. Completed 12-	7-00	19		
	Static level 40 ft. below top of wall Date 12/7/00	WELL CONSTRUCTOR CERTIFICATION:				
	Artesian pressure ibs. per square inch Date					
	(Cap, valva, etc.)	I constructed and/or accept responsibility for construction compliance with all Washington well construction standards	. Materials t	ised and		
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level	the information reported above are true to my best knowledg	e and belief.			
	Was a pump test made? Yes No No If yes, by whom?	NAME UNITED DRILLING INC (PERSON, FIRM, OR CORPORATION) (TYPE OR				
	Yield:gal./min. withft. drawdown afterhrs.		•			
	n n n	Address PO BOX 1690, HAYDEN ID 8	3835 [.]			
	Recovery data (time taken as zero when pump turned off) (water level measured from well	(Signed) Licens	e No. 236	4		
7	top to water level Time Water Level Time Water Level	(WELL DRILLER)				
	THE THE THE TAKE LAND	Contractor Registration				
		No. UNITEDI137Q3 Date 12/7/00		19		
	Date of Incl.	(USE ADDITIONAL SHEETS IF NECESSA	ARY)			
	Date of test Bailer testgal./min. withft. drawdown afterhrs.					
	Airtest 30 gal./min. with stem set at 175 ft. for 1 hrs.	Ecology is an Equal Opportunity and Affirmative Action e	mployer. F	or spe-		
	Artesian flow g.p.m. Date	cial accommodation needs, contact the Water Resources 407-6600. The TDD number is (206) 407-6006.	Program a	at (206)		

Third Copy — Driller's Copy STATE OF		WELL REPORT Application No.			
		WASHINGTON	Permit No.	Permit No	
(1) OWNER: Name (b) (6)		Address (b) (6)			
LOCATION OF WELL: County	SPOKANO	NW:	NF V Sec. 1 T	23.N. R	ـــــــــــــــــــــــــــــــــــــ
ing and distance from section or subdivision c			· · · · · · · · · · · · · · · · · · ·		,,
(3) PROPOSED USE: Domestic Z Indu	estrial () Municipal ()	(10) WELL LOG:			
Irrigation [] Test	-	Formation: Describe by color	, character, size of mater	ial and stru	cture, and
(A) TVPE OF WORK. Owner's number of	/ wall	show thickness of aquifers as stratum penetrated, with at	nd the kind and nature of least one entry for each	the mater change of	ial in eac) formation
(4) TYPE OF WORK: Owner's number of (if more than one) New well Method:		MATE	RIAL	FROM	TO
Despend	Cable Driven	1 Top S	1	0	٤
Reconditioned [Rotar Jetted	Brown Cl	my (Shird)	2.	21
(5) DIMENSIONS: Diameter of we	6	Vellow 11	1 (11)	81	89
Diameta, at its	d well 260 H.	PINK CLAY	7 //)	22	111-
	The state of the s	- FYHITUXOO	Cranst	111	260
(6) CONSTRUCTION DETAILS:				 	
	L. n. w 212 n.			 	
Threaded" Dlam. from				 -	
Welded D Diam. from	ft. 10 ft.			-	
Perforations: Yes No 62				 	
Type of perforator used	***************************************		·	 	
SIZE of perforations in.	by in,				
perforations from				1	
perforations from perforations from					
		, , , , , , , , , , , , , , , , , , , ,	_	1	
Screens: Yes No by	,				
Manufacturer's Name					
Diam, Slot size from					
Diam. Slot size from					
Gravel packed: Yes [No] Size of					
Gravel placed from	to		[3. [3. [4.]4.]4.]		
Surface seal: Yes . No . To what	tepth? 18 t n		RECEIV	ED	
Material used in seal.			CED O O 100r		
Did nny strata contain unusable water			FEB 28 1980	4	
Type of wateri Depth of			DEPARTMENT OF ECO	LOGY	
Method of sealing strata off			POKANE REGIONAL	7	
(7) PUMP: Manufacturer's Name			CTITALS REGIONAL	OTTION.	
Туре:	Н.Р				
(8) WATER LEVELS: Land-surface eleva	tion 25				
Static level				 	
Ariesian pressure				 	
Artesian water is controlled by				 - 	
THE CONTRACTOR OF THE CONTRACT	ap, valve, etc.)			1	
(9) WELL TESTS: Drawdown is amoun lowered below stalls	it water lavel is	Work started 11-13	1979 Completed	1-14	> 4
	hom7,				., 197
field: gal/min, with ft. drawdow		WELL DRILLER'S ST	ATEMENT:		
· · · · · · · · · · · · · · · · · · ·		This well was drilled u	inder my jurisdiction	and this r	eport is
IIV JUST HARYAND 12 LOA	PM "	true to the best of my kn	owiedge and belief.		
Recovery data (time taken as zero when pump tur measured from well top to water level)	med off) (water level	Can D'	William There		
	lime Water Level	NAME (Person Ser	n. or corporation)	Type or pri	nt)
		יים מות אונים אין			
		Address 6/3 5 0	INK. Rd Isr	PAINE	V-05 **
		19 01	2000		
wate of test		[Signed] Cred	Kyetera		
Bailer testgal/min. withft, drawdo			Well Driller)		
Comperature of Water		License No @ 2/5	Date	1-18	10 79

File Original and First Copy with Department of Ecology Econd Copy — Owner's Copy Third Copy — Driler's Copy	WATER	WELL REPORT	Application No	
	STATE	OF WASHINGTON	Permit No	
(1) OWNER: Name (b) (6)				
	County DPOKAN	L SENNE	4 Sec. 35 Tal 4N, R	74EWM
	r subdivision corner Just	_		
	estic 🗹 Industrial 🗆 Municip			
·	ation Test Well Other		scter, size of material and str	ucture and
		Formation: Describe by color, charge show thickness of aquifers and the stratum penetraled, with at least o	kind and nature of the mater ne entry for each change of	rial in each formation.
(if m	nore than one)	MATERIAL	FROM	то
	Method: Dug ☐ Bore Cable ☐ Drive	en D		
Reconditioned	,	OULEBURDEN	1 0	3
(5) DIMENSIONS:	. 6			<u> </u>
• • • • • • • • • • • • • • • • • • • •	th of completed well 25		3	112
		SANO + GRAL	12	ļ
(6) CONSTRUCTION DETA			/ 21 / 2	
	Diam. from O tt. to 60		PRANITE 17	59
Threaded ☐ "" !	Diam. from	- N. 1 - 7		
		SHATTERED		
Perforations: Yes No		GRANITE	59	195
•	in. by			-
_	rom ft. to	1		
_	from ft. to	i		
perforations fi	rom ft. to	N.		
Screens: Yes 🗆 No 🗹				1
			1 St.	
	from It. to)	
	from ft. to			<u> </u>
Gravel packed: Yes N	No [a Size of gravel;	SEP 2.8 1983		
	ft, to	. #.		<u> </u>
		- DEPARTMENT OF ECOLOG	Extransion control con	
Surface seal: Yes No [- * SPOKANE REGIONAL OFFI	CE	
Did any strate contain u		io 🐔		
Type of water?	Depth of strata			
Method of sealing strata of	0	typ plantel .		
(7) PUMP: Manufacturer's Name	J	niorms		
	НР			
(8) WATER LEVELS: Lan	nd-surface elevation 2600	0,		ļ
	elow top of well Date	-15		
Artesian pressure				
Artesian water is controlle	(Cap, valve, etc.)			ļ
	down is amount water level is		> 1/- 8	1 X =
, , , , , , , , , , , , , , , , , , ,	red below static level If yes, by whom?	Work started 7.5 19.0	3. Completed 4-0	حريه
Yield: gal./min. with	ft. drawdown after	hra. WELL DRILLER'S STATE	MENT:	
11		"This well was drilled under		report is
0 0	le	rue to the best of my knowled	ige and belief,	
Recovery data (time taken as zero we measured from well top to water	when pump turned off) (water level)	1	MING COITNE	<u>.</u> .
Time Water Level Time W	later Level Time. Water Le	(Person, firm, or	orporation) (Type or p	rint)
		Address AT Box !	185 DEERTAN	<u> </u>
AIR LIPE 50	gem.	\cap) ()	
ate of test	V .	[Signed]	sure	**********
Bailer testgai./min, with		hre.	(Well Driller)	0~
	g.p.m. Date		Date 4-15	ككور
9/28/5		7-1	•	
1/2-/-		AL SERETS IF NECESSARY)	She will see	4
FCY 050-1-20	- Care 1	A. C. C. Shirty . The	7. A. A.	-

(USE ADDITIONAL SHEETS IF NECESSARY)

	Original and First Copy with ariment of Ecology WAT	ER WE	LL RE	PORT	Start Card No		_
Sec	ond Copy-Owner's Copy.		MOYDNIHEAN				
Thir	d Copy—Driller's Copy(b) (6)				Parmit No.		
Ĭ	OWNER: Nam		Address	_s (b) (6)			
(2)	LOCATION OF WELL: County Spoka			NE W	5 E N Sec 2 T	N., R	44 W.A
(2a	STREET ADDDRESS OF WELL (or nearest address)	Idex Rd-	# JAU	Kenne Rd.	Fyrmer L	UA.	
	PROPOSED USE: Domestic Industrial	Municipal []	T		DONMENT PROCED		
	☐ DeWater Test Well ☐	Other []	Formation: De	escribe by color, c	haracter, size of material and nature of the material is	and atructure	, and sho
(4)	TYPE OF WORK: Owner's number of well (If more than one)		with at least on	e entry for each char		FROM	то
	Abandoned New well Method: Dug Deepened Cable	Bored □	7.	op Sail		ø	2
	Deepened ☐ Cable ☐ Reconditioned ☐ Rotary ☐	Jetted [Clav		- Hard	2	35
<u></u>	DIMENSIONS: Diameter of well	inches.	Base		of Fractioned	335	40
(5)	Diamotor of Wolf		277		Mard	40	110
<u>.</u>	Drilled 220 feet. Depth of completed well 6	11.	11	Expoterio	2 W/BYN Play	110	160
(6)	CONSTRUCTION DETAILS:		11	100	, ,	160	166
	Casing installed: Diam. from fl. to	44/_ft.	, 1	FYA	etend	166	169
	Welded Diam, from f1. to	ft.	11	14	gyd	169	170
	Threaded Diam. from H. to	ft.	11	/-	Fractions	170	185
	Perforations: Yes No		11	17	ed.	185	187
	Type of perforator used		11	FYPE	texed	187	196
	SIZE of perforationsin. by	in.	"/		syd	196	220
	perforations fromft. to						
	perforations fromft. to						
_	ft. lo	ft.					
	Screens: Yes No	-					
	Manufacturer's Name						
)	Type Mode						
_	Dlamft. to						
	Diam. Slot size trame tt. to						
	Gravel packed: Yes No Size of gravel			· · · · · · · · · · · · · · · · · · ·		-	
	Gravel placed fromft, to	ft.	1307 237 137 137 137 137		*		
	Surface seal: Yes No To what depth?	18 × n.	li nin		0.0		
	Material used in seal Bon to N. 4	· · · · · · · · · · · · · · · · · · ·	in	<u> </u>	₩ B in		
,	Did any strata contain unusable water? Yee No		- :: 1			-	
	Type of water?Depth of s	trata		SEP 5	989	1	
	Method of sealing strata off		1-1-1-4	-2Fb 1 2 1	989 ;	-	
(7)	PUMP: Manufacturer's Name	(·· *	<u>.</u>			+	
۱۰,		H.P		DENT	. 1	-	
	Lead surface playation	1111	· · · · · · · · · · · · · · · · · · ·	CI.			
(8)	WATER LEVELS: above meen sea level	2-10.09					
	Static level ft. below top of well Date Artesian pressure lbs. per square inch Date						
-	Artesian water is controlled by (Cap, valve, et						
			Work started_	8-17		- יזבן היהפ	
(9)	WELL TESTS: Drawdown is amount water-level is lowered by Was a pump test made? Yes No If yes, by whom?						
	Yield: gal./min. with ft. drawdown efter			NSTRUCTOR C			Hele well
	11 11 11	11			pt responsibility for cor all Washington well co		
	AIV Tost " 30 BPM	31	Materials	used and the inf	ormation reported abov		
	Recovery data (lime taken as zero when pump turned off) (water level from well top to water level)	elmeasured	Knowledg	ge and belief.			
	Time WaterLevel Time WaterLevel Time	Water Level	NAME ()	(a. Dul	Live Face.		
			NAME S	(PERSON, FIRM,	OR CORPORATION)	(TYPE OF	PRINT)
			Addraga	6135 JIN	K. 2) 154	eine d	WR.
*			Vagioss		99.		
	Date of test	- .	(Signed)_4	an Com	License	No. 144	>
	Bailer test gal./min. with ft. drawdown after	hre.	Contractor's	(WELL DRILL			
	Airtest gal./min. with stem set at ft. for _	hrs.	D1-1 11		Date	. Dr. 22	, 6
	Artesian flow g.p.m. Date		No. VJD	hr 12-///	_ Date	0 -0	_, 1927_/
		أخالينا		5.1			•

File Original and First Copy with Department of Ecology

WATER WELL REPORT

Application	No.	****************	
Donnik M.			

Third	d Copy — Owner's Copy Copy — Driller's Copy	ETATE OF W	VASHINGTON Permit No		,
(1)	OWNER: Name	***	(b) (6)		
-			. Address	3	44
1000	ng and distance from section or subdivision cor		Sec. T.	N., R.	!
(3)	PROPOSED USE: Domestic Z Indust	trial Municipal	(10) WELL LOG:		
	Irrigation [] Test V	Well Other	Formation: Describe by color, character, size of materia show thickness of aquifers and the kind and nature of stratum penetrated, with at least one entry for each c	l and stru	icture, an
(4)	TYPE OF WORK: Owner's number of (if more than one).	well	stratum penetrated, with at least one entry for each c		
	New well 🕅 Method: 1	Dug' 🔲 Bored 🗆	TOPSOIL	FROM	TO
	•	Cable ☐ Driven ☐ ☐ Rotary ☑ Jetted ☐			
(5)	DIMENSIONS: Diameter of well	6 inches.	LT, BRN, CLAY-MARD	1	12
(0)	Drilled 200 ft. Depth of completed	well ZOO ft.	SAND & GRAVEC	12	15
(6)	CONSTRUCTION DETAILS:				
` '	Casing installed: Diam. from	-1 tt to 59 tt	TAN CLAY-FIRM	/5	22
	Threaded []" Diam. from" Welded W" Diam. from"		GRAY CLAY-FIRM	22	38
		14. to It.			
	Perforations: Yes No No Type of perforator used		BASACT - VERY HARD W/FRACES	38	135
	SIZE of perforations in. h	oy in.	WHI EIE		
	perforations from		BASACT - MARD W/ FRACTS, - WATER	135	155
	perforations from	ft. to ft.	BASACT-FRACT-CLAY BINDER-	155	168
	Screens: Yes D No /		WATER	100	160
	Manufacturer's Name Mod		BARAGE SAAGE A MORE OF ALL	44.0	-
	Diam Slot size from	ft, to ft.	BASACT-FRACT-CWBERS-CLAY BINDER - WATER	168	200
	Diam Slot size from	It. to It.	THE POLICE OF TH		
	Gravel packed: Yes No Size of a	gravel:			
			WELL IS LINED W/ H" AVE		
	Surface seal: Yes No D To what do	epth? Co. ft.			
	Did any strata contain unusable water?	Yes 🗆 No 🕅	tree II II S F	* H* "G	
	Type of water? Depth of Method of sealing strata off	1	Land from 1 1 1 1 1 1 1		
(7)	PUMP: Manufacturer's Name		A Comment		
		н.р			
(8)	WATER LEVELS: Land-surface elevat	ion elft.	armaciaces as esplas	V	
Static	level	Date	DEI MINISTER DYCHONIAL OFFI	Ę	
Artesi	an pressure		SPUNNIE REGIONAL STA		
		p, valve, etc.)			
	lowered below static	level	Work started	8/2	28,27
Yield:			WELL DRILLER'S STATEMENT:	,	
HP	PROY I'CO + GPM BY AIR UFT	• ,,	This well was drilled under my jurisdiction a true to the best of my knowledge and belief.	nd this	report is
Recov	ery data (time taken as zero when pump turn		The to the best of my knowledge and benef.		
m Tim	easured from well top to water level) c Water Level Time Water Level Ti	ime Water Level	NAME 9 DRIGHO THE (Person, firm, or corporation) (T		·····
			S 5131 1-71 (0,714	ype or pi	1.1 A
			Address 2000 CINCO NO. 19 CCC DA	1,K.C.S	WA
	ite of test		[Signed] Devan Silva	-	
	testgal./min, withft, drawdov an flowg.p.m, Dateg.	1	(Well Driller)		•. AA
	rature of water Was a chemical analysis		License No. 1278 Date	8/2	D1981

(10) WELL LOG:					
Formation: Describe by color, character, size of materia show thickness of aquifers and the kind and nature of stratum penetrated, with at least one entry for each c	l and stru the mater hange of	cture, and lal in each formation.			
MATERIAL	FROM	TO			
TOPSOIL	0	1			
LT, BRN, CLAY-MARD	1	12			
SAND & GRAVEC	12	15			
TAN CLAY-FIRM	15	22			
GRAY CLAP-FIRM	22	38			
BASACT-VERY HARD W/FRACTS	38	135			
BASACT - MARD W/ FRACTS, - WATER	135	155			
BASACT-FRACT-CLAY BINDER- WATER	155	168			
BASACT-FRACT-CWBERS-CLAY BINDER - WATER	168	200			
WELL IS LINED W/H" PVE					
AUG 31 1987					
Department de begins	y				
SPOKANE REGIONAL OFFI)E				
C, Utilina					
8/20 80	8/2	9 81			
Work started		C 190. [
WELL DRILLER'S STATEMENT:					
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.					
	ype or pr	·Int)			
Address 2,5613 CINKO NO. COPETA	LRE3	WA.			
[Signed]Jewan J. (Sall Priller)	-				

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WATER WELL REPORT

Application No.

	STATE OF V	WASHINGTON	Permit No.		
(1) OWNER: Name (b) (6)		(b) (6)			
	ANE		1/42 4 64		44)
g and distance from section or subdivision corner			_ No 14 3 4 1 Sec. 36 T.	7. N., R.	4.7. ₩.₩
(3) PROPOSED USE: Domestic of Industrial	Municipal []	(10) WELL	LOG:		
Irrigation Test Well	Other 🔲			il and stri	icture, and
(4) TYPE OF WORK: Owner's number of well		show thickness of airctum penetrate	nbe by color, character, size of materic I aquifers and the kind and nature of ed, with at least one entry for each o	the mater hange of	ial in eaci formation
New well Method: Dur	Bored [MATERIAL	FROM	то
Deepened [] Cable [_	TOPSOIL	·	Q	2
Reconditioned [Rotary	Jetted [TE CA	CAY-TIRM	2	13
(5) DIMENSIONS: Diameter of well	Inches.	ZAKNIT-	FIRM TO HARD	3	18
Drilled 1.80 tt. Depth of completed well	./tt.	PAKALT-1	MED. W KERACIS.	B	35
(6) CONSTRUCTION DETAILS:		BASALT-1	HARD WITRACTS WATER	55	95
Casing installed: 6 Diam from +1 n	39 "	BRN.CLA	Y-HAPO	45	150
Threaded [] "Diam. from ti. 1		77.77	CLAY-HARD	150	170
Welded Diam. from ft. t	to ft.	-LT, BRALC	LAY-GRITTY-FIRM	170	180.
Perforations: Yes 🗆 No 🔀					
Type of perforator used					
SIZE of perforations in. by					
perforations from					
perforations from ft. to	tt.				
Screens: Yes Note					
Manufacturer's Name					
Diam. Slot size from ft, t					
Diam. Slot size from ft. t	0 ft.				
Gravel packed: Yes No K Size of gravel:					
Gravei placed from					
Surface seal: Yes W No To what depth?	8				
Material used in seal SENTON HE			7 6 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5		
Did any strate contain unusable water? Yes [□ No Ye				
Type of water?					
			SEP 1 5 1986 -		
(7) PUMP: Manufacturer's Name			COR And the Core		
		L	DEFERRIMENT OF LIGHT		
(8) WATER LEVELS: Land-surface elevation above mean sea level			SPOKANE NESTITIAL CHEICE		
Static level					
Artesian water is controlled by(Cap, valve,					
				-	
(9) WELL TESTS: Drawdown is amount water la	,	Work started	8/2419 BG Completed	8/2	1.86
Was a pump test made? Yes \(\) No \(\) If yes, by whom? It is gal./min, with \(\) it, drawdown after	hrs.	WELL DRILL	ER'S STATEMENT:		
APPROK, JUPIN BY AICTEST	"		s drilled under my jurisdiction ar	ad this n	nort in
n n	,	true to the best	of my knowledge and belief.	iu tais ii	chorr 19
Recovery data (time taken as zero when pump turned off) (measured from well top to water level)	water level	7 47	There is the		
	ater Level	NAME	Person, firm, or corporation)	pe or pri	nt)
		J. 5.6%	13 Links PO Lame	2000	K , M
		Audress. V.I.		ag Karkhalin	m(4-4)
ite of test		[Signed] Ju	San Ha Suite		,
arier testgal/min. withtt, drawdown after		(Promoti j. mage. at 12	(Well Driller)	_ /	************
rterian flowg.p.m. Date		License No	218 Date	9/8	1086

EGY 666-1-20

File Original with Department of Ecology Second Copy - Owner's Copy Third Copy - Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

	11 22 27
Notice of Intent W12	21466
UNIQUE WELL I.D. #	ACY-030

TIMOTHIOTOTI .	
	Water Right Permit i

(1)	OWNER: Name_ (D) (O)	ddress(b) (6)
(2) (2a)	STREET ADDRESS OF WELL: (or negrest address) Corner of Jacobs PARCEL NO.	NW 1/4 SW 1/4 Sec Ol T 23N N.R. 44E WM ckson & Elder Rd.
(3)	PROPOSED USE: Domestic Industrial Municipal Industrial Other Other	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION Formation: Describe by color, character, size of malerial and structure, and the kind and nature of the material in each stratum penetrated, with at least
(4)	TYPE OF WORK: Owner's number of well (if more than one) New Well Deepered Doug Bored Reconditioned Decommission Rotary Jetted	one entry for each change of information, indicate all water encountered. MATERIAL FROM TO Proposil 0 3 Basalt Broken Soft 3 28
(5)	DIMENBIONS: Diameter of well 6" inche Drilled 180 feet. Depth of completed well 180	Basalt Black Medium 28 110 Basalt Fractured W/Some Clay 110 120
• •	CONSTRUCTION DETAILS Casing installed: © Welded Liner installed Threaded Diam. from -20 ft. to -180 ft. to -18	Basalt Black Medium 120 155 Basalt Fractured W/Water 155 180
	Perforations: No Type of perforation used Skillsaw SIZE of perforationsin. byirin. byir	
	Screens: Tyes No K-Pac Location Manufacturer's Name Model No. Type Model No. Diam. Slot Size from ft. to ft Diam. Slot Size from ft. to ft	
,	GraveVFilter packed: ☐ Yes ☐ No ☐ Size of graveVsand	DEPARTMENT OF FUMOUS
	PUMP: Manufacturer's Name Type:H.P	
	WATER LEVELS: Land-surface elevation above mean sea level Static level 50 ft. below top of well Artesian pressure lba, per square inch Date	Work Started 10/18/99 Completed 10/18/99
	Artesian water is controlled by(Cap, valve, etc.)	WELL CONSTRUCTION CERTIFICATION:
	WELL TESTS: Drawdown is amount water level is lowered below static fevel Was a pump test made?	Type or Print Name J1m McLes11e Lcense No. 2257 (Licensed Driller/Engineer) Trainee Name License No. Drilling Company H20 We11 Syc Inc. 1-800-772-4 (Signed) License No. 2257 (Licensed Driller/Engineer) Address 582 W Hayden Ave Eayden Lake Id 8
	Baller test gal./min. with tt, drawdown after hrs. Alriest 20+ gal./min. with tt, drawdown after hrs. Artesian (low g.p.m. Date Temperature of water Was a chemical analysis made? Yes No	Projetration No. 120 MEDITOIDW Projet 10/10/99

File Original with
Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy

WATER WELL REPORT

Notice of Intent	
UNIQUE WELL I.D. #	AEQ094
W111948	

	ond Copy - Owner's Copy d Copy - Driller's Copy	STATE O	F WASHINGTON		Water Right Permit No. W111948
(1)	OWNER: Name			Add	(b) (6)
(2) (2a)	STREET ADDRESS OF WELL TAX PARCEL NO.: Unkr	L: (or nearest address) Wasr	nington		1/4 NW 1/4 Sec 36 T 24N N.R. 44E WM
(3)	PROPOSED USE: X Don Into	ation 🔲 Teat Well Vater	☐ Municipal ☐ Other		(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information, indicate all water encountered.
(4)	New Dee □ Rec	's number of well (if more than on v Well Method: pended □ Dug conditioned □ Cable commission X□ Rotary	☐ Bored ☐ Driven ☐ Jetted	-	MATERIAL FROM TO Topsoil 0 1 Clay, Brown 1 18
(5)	400	er of wellepth of completed well	100	ches ft.	Granite, Hard 18 21 Granite, Fractured 21 26 Granite, Medium to Hard 26 71
(6)	CONSTRUCTION DETAILS Casing Installed: X Welded Liner installed Threaded	6 - Diam. from +1 Diam. from Diam. from	ft. to 39 ft. to		Granite, Medium to Harw 20 71 Granite, Medium to Soft 71 77 Granite, Medium 77 107 Granite, Fractured - 107 108 Water 1/2 gpm Granite, Medium to Hard 108 197
	SIZE of perforations	☑ Noin. byperforations from		in. ft.	w/ slight fractures
	Manufacturer's Name Type Diam. Slot Size Diam. Skot Size	Model N from from from from Size of grave/sand	Noft. to		Granite, Hard w/ slight 347 480 fractures
	Material placed from	ft. to			
(7)	Method of sealing strata off	tonite e water? □ Yes Xi No Depth of str	rata		DEPARTMENT OF ECOLOGY EASTERN RECICIAL OFF CE
(8)	Static level 100	ce elevation above mean sea leve tt. below top of well lbs. per square inch	Date 8/11/	9 9 	
(9)	WELL TESTS: Drawdown is a Was a pump test made? □ Yo Yield:	(Cap, valve, etc amount water level is lowered bek es (X) No If yes, by whom? ft. drawdowft. drawdowft. drawdowtt. drawdow zero when pump lurned off) (wate Time Water Level	ow static level m after m after m after ri level measured from Time Water L ydown after	n Level	WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and compliance with all Washington well construction standards. Materials us and the information reported above are true to my best knowledge and bely and the information reported above are true to my best knowledge and bely type or Print Name Don Anderson License No. 1447 (Licensed Driller/Engineer) Trainee Name Drilling Company J & Drilling, Inc. (Signed) Licensed Driller/Engineer) Address S 5618 Linke Greenacres, WA99 Contractor's Registration No. JURII-177KU Date 8/20/99 (USE ADDITIONAL SHEETS IF NECESSARY)
	Temperature of water	Was a chemical analysis mad	e? ⊒Yes XINo		Ecology is an Equal Opportunity and Affirmative Action employer. F52pe

Data analor die muormanon on ans reen nepora A Mail ailty wile ine peparament or everyly aves nor

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Temperature of water _____ Was a chemical analysis made? Yes ___

ECY 050-1-20 (9-93) * * 1

WATER WELL REPORT STATE OF WASHINGTON WASHINGTON

Start Card No. <u>W101886</u>

UNIQUE WELL I.D. . A E C 4 6 5

Third Copy — Dhisr's Copy	Water Right Permit No.
(1) OWNER: Name (b) (6)	(b) (6) (b) (7)
(2) LOCATION OF WELL: County_Spokane	1/4 SW 1/4500 36 124N N. R44E
(2a) STREET ADDRESS OF WELL (or nearest address) 16002 E. Wa	shington
(3) PROPOSED USE: Domestic Industrial Municipal C	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
DeWater Test Well Other	Formation Describe by color, character, size of material and structure and show thickness of ac- and the kind and nature of the material in each stratum penetrated, with at least one entry for
(4) TYPE OF WORK: Owner's number of well [II more than one]	change of information. MATERIAL FROM T
Abendoned New well 10 Method: Dug Bored Despend Cable Driven	Top Soil 0 3
Reconditioned ☐ Rotary (C Jetted ☐	Granite, Decomposed 3
(5) DIMENSIONS; Diameter of well 6 inche	Granite, Med. to Soft 27 1
Drilled 300 feet. Depth of completed well 300	
(6) CONSTRUCTION DETAILS:	Granite, Fractured - Water 128 1
Casing Installed: 6 Diam. from +1 It. to 50	
Welded Diam. from tt. to 3.0.0. Liner installed Diam. from tt. to t. to t. to	n Granite, Med. w/ Fractures 210 3
	7.
Perforations: Yes No X Type of perforator used	
SIZE of perforationsin. byI	- in.
	n.
	n.
Screens: Yes No (X) Manufacturer's Name	
Type Model No.	
Diam Skot size from ft. to	
	ft.
Gravel placed from	
Surface seal: Yes X No To what depth? 18+ 18 Material used in seal Rentonite	A
Did any strata contain unusable water? Yes No 💢	DEPARTMENT OF COLOGY EASTERN REGIONAL OFFICE (
Type of water? Depth of strata	
Method of sealing strata off	
(7) PUMP: Manufacturer's Name	
Туре:	-
8) WATER LEVELS: Land-surface elevation above mean sea level	h. Work Started 6/30/98 19. Completed 6/31/98 19
Static level 20 Hi below top of well Data 6/31/98 Attested pressure the pressure of the per square such Data	WELL CONSTRUCTOR CERTIFICATION:
Artesian water is controlled by (Cap, valve, etc.)	I constructed and/or accept responsibility for construction of this well, and
9) WELL TESTS: Drawdown is amount water level is lowered below static level	compliance with all Washington well construction standards. Materials used a the information reported above are true to my best knowledge and belief.
Was a pump lest made? Yes No M li yes, by whom?	J & J Drilling, Inc.
Yield:gal./min. withhr. drawdown afterhrs	
"Air Test 3"gpm "	" Address S. 5613 Linke Greenacres, WA 9
Recovery data (time taken as zero when pump turned of) (water level measured from well	(Signed) Din Chrystern 1447
top to water level) Time Water Level Time Water Level Time Water Level	, , , , , , , , , , , , , , , , , , , ,
	Contractor's Registration No. JJDRII-177KU Date 7/2/98 , 19
Date of test	(USE ADDITIONAL SHEETS IF NECESSARY)
Bailer testgal.rmin. with ft. drawdown after hra	
Airlestgal./min, with stem set attt. forhre Artestan flowgp.m. Date	cial accommodation needs, contact the Water Resources Program at (20
Temperature of water Was a chemical againsts made? Yes No I	407-6600. The TDD number is (206) 407-6006.

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

WATER WELL REPORT STATE OF WASHINGTON

Application	No.	***************************************
Damelt Ma		

) OWNER: Name.	(b) (6) Addres		
21 LOCATION OF WELL County Spall	Block 3 Freeman ada	3 n, r	14 GM
ing and distance from section or subdivision corner Lot / &	lock 3 Freeman ada	lite	<u> </u>
(3) PROPOSED USE: Domestic of Industrial [Municipal [(10) WELL LOG:		
Irrigation Test Well Other	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of t stratum penetrated, with at least one entry for each of	and stru he mater	icture, and ial in each
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM	TO
New well Method: Dug Bored	Black too sail	17	4.
(Deepened	gellery class	4	64
	Black March	64	100
(5) DIMENSIONS: Diameter of well inches. Drilled O tt. Depth of completed well tt.	nara		
(6) CONSTRUCTION DETAILS:			
Casing installed: 6 "Diam. from 6 ft. to 64 ft.			
. Threaded "Diam, from ft. to ft.			
Welded Diam, from ft. to ft.	,		
Perforations: Yes 🗆 No 🗗			
Type of perforator used	· · · · · · · · · · · · · · · · · · ·	·	
perforations from			
perforations from ft. to ft.			
perforations from ft, to ft.	MAD 4 + 1004		
Screens: Yes No. 2	[man] # (304		
, Manufacturer's Name	DEPARTMENT OF ECOLOGY	·	
Diam Slot size from ft, to ft,	SPOKANE REGIONAL OFFICE		
Diam Slot size from ft, to ft,			
Gravel packed: Yes No Size of gravel;			
Gravel placed from ft, to ft,			
Surface seal: Yes No No To what depth? it.			
Material used in seal. A Material used in seal. Did any strata contain unusable water? Yes No			
Type of water? Depth of strata			
Method of sealing strata off			
(7) PUMP: Manufacturer's Name			
Type:			
(8) WATER LEVELS: Land-surface elevation above mean sea level.			· · · · ·
Static levelft. below top of well Dates			
Artesian pressure			
Artesian water is controlled by (Cap, valve, etc.)			
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 2 5 198 7 Completed 25	22	1984
Was a pump test made? Yes □ No □ If yes, by whom?	WELL DRILLER'S STATEMENT:		
Yield: gal/min, with ft, drawdown after hrs.	This well was drilled under my jurisdiction ar	nd this i	eport is
n n n	true to the best of my knowledge and belief.		. • . • . • . •
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	BOVAL WORL		
Time Water Level Time Water Level Time Water Level	(Person, firm, or corporation) (Ty	pe or pri	int) G G A 3
	Address R-1 BOX 154A VALLEY	Forc	LWOW
<u> </u>	1) 1) 1	7	yeninin -
pate of feligi	[Signed] BOYA L, WOOD	4	
dier test go gal/min, with ft, drawdown after hrs.	(Well Driller)		0.11
Artesian flowg.p.m. Dateg.p.m. Date	License No. 1285 Date G	<u> </u>	, 19X.F
3/14/84 M			
(USE ADDITIONAL SHE	ETS IF NECESSARY)		54

(USE ADDITIONAL SHEETS IF NECESSARY)

WARD WELL DEPONE	W2	21
WATER WELL REPORT	CURRENT	
Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller E C 0 L 0 C Y Construction/Decommission ("x" in circle) Construction	Notice of Intent No. WE10484	
Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No. APC-148	
☐ Decommission ORIGINAL INSTALLATION		
Notice of Intent Number	Water Right Permit No.	
PROPOSED USE: Domestic	Property Owner Name(b) (6)	
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other	Well Street Address 16305 E. WASHINGTON RD.	
TYPE OF WORK: Owner's number of well (if more than one) 1	City VALLEYFORD County SPOKANE	
☑ New woll ☐ Reconditioned Method : ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted	Location SE1/4-1/4 NW1/4 Sec 36 Twn 34 R 44E	
DIMENSIONS: Diameter of well 6 inches, drilled 580 ft.	(s, t, r Still REQUIRED)	EWM ⊠ Or
Depth of completed well 580ft.		WWM 🗆
CONSTRUCTION DETAILS	Lat/Lana Lat Dag Lat Min/See	
Castug ⊠ Welded 6." Diam. from +2 ft. to 18 ft. Installed: ⊠ Liner installed 4." Diam. from -5 ft. to 580 ft.	Lat/Long Lat Deg Lat Min/Sec Long Deg Long Min/Sec	
☐ Threaded Plam. From ft. to ft.	Tax Parcel No. (Required) 44362.9038	
Perforations: 🛛 Yes 🗋 No	Tax Farco No. (Acquired) 44302.3030	
Type of perforator used SAW	CONSTRUCTION OR DECOMMISSION PROC Formation: Describe by color, character, size of material and struct	
SIZE of perfs 1/8 in. by 4 in. and no. of perfs 48 from -560ft, to -580ft.	nature of the material in each stratum penetrated, with at least one	entry for each change
Screens: Yes No K-Pac Location	of information, (USE ADDITIONAL SHEETS IF NECESSARY.)	
Manufacturer's Name Model No	MATERIAL Top Soil	FROM TO
Diam. Slot size from ft. to ft.	Tan Clay	3 15
Diam. Slot size from ft. to ft.	Soft Tan Clay	15 30
Gravel/Filter packed: Yes No Size of gravel/sand	Gray Granite	30 60
Materials placed from ft. to ft.	Tan Granite	60 80
Surface Seal: Yes No To what depth? 18 ft.	Grn & Gry Granite	80 160
Material used in seal BENTONITE	Tan & Gry Granite	160 190
Did any strata contain unusable water?	Gry & Wht Granite Bik & Wht Granite	190 240 240 270
Type of water? Depth of strata	Gry & Whit Granite	270 440
Method of sealing strata off	Blk & Whi Granite	440 560
PUMP: Manufacturer's Name	Gry & Wht Fract Granite	560 580
Туро: Н.Р.		
WATER LEVELS: Land-surface elevation above mean sea level ft.		
Static level 100 ft. below top of well Date 9/17/09		
Artesian pressure lbs. per square inch Date		
Artesian water is controlled by (cap, valve, etc.)		***************************************
WELL TESTS: Drawdown is amount water level is lowered below static level		= nn n == 1==
Was a pump test made? Yes No If yes, by whom?		7 7 7
Yield:gal/min. withft. drawdown afterhrs. Yield:gal/min. withft. drawdown afterhrs.		-11, 0 -3 L
Yield:gal/min. withft. drawdown afterhrs.	OCT	6 2009
Recovery data (time taken as zero when pump turned off) (water level measured from well		
top to water level)		ror eoplogy
Time Water Level Time Water Level	CASTERN RE	SIONAL OFFICE
70.5		
Date of test		
Bailor test_gal/min. withft. drawdown afterhrs.		
Airtest 10 gal/min, with stem set atfl. for 1 hrs.		
Artesian flowg.p.m. Date	Start Date 9/16/2009 Completed Date 9/	18/2009
Temperature of water COLD Was a chemical analysis made? Yes No		
WELL CONSTRUCTION CONTROLS		
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept response construction standards. Materials used and the information reported above are true	normal to construction of this well, and its compliance with all	Washington well
•		
Driller Engineer Traince Name (mint) JIM McLESLIE	Drilling Company H2O WELL SERVICE INC.	
Driller/Engineer/Trainee Signature Sim III Sexul	Address 582 W, HAYDEN AVE.	

Driller's Signature: ECY 050-1-20 (Rev 4/07)

Driller or trainee License No. 2871

IF TRAINEE: Driller's License No:

Ecology is an Equal Opportunity Employer

Contractor's
Registration No. H2OWESI101DW, Date 9/18/2009

, ID, 83835

City, State, Zip HAYDEN

g.p.m. Date _ Temperature of water ____ Was a chemical analysis made? Yes ___ No __

WATE

W22

	/L\ /O\		
1) OWNER: Name(b) (6)	Address (b) (6)		
LOCATION OF WELL: County Spokene	. SE % SW % 80c 36 T.	24_ н., в	44 W.1
7 2	nghton, Freeman, WA		37.1
B) PROPOSED USE: Domestic Industrial Municipal DeWater Test Well Other	(10) WELL LOG or ABANDONMENT PROCEDU Formation: Describe by color, character, size of material a		1 777
TYPE OF WORK: Owner's number of well	thickness of equilers and the kind and nature of the material in e with at least one entry for each change of information.	ach atraium	penetrate
Abandoned New well Method: Dug Bored	MATERIAL	FROM	TO
Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary Ø Jetted ☐	Topsoil	0	1
	Clay-brnhard Granit-decomposed	12	78
Diameter of well inches.	Granit-med.	78	110
	Granit-fractwater-s-G.P.M.	110	115
) CONSTRUCTION DETAILS:	Granit-soft to med.	115	185
Caeing Installed: 6 Diam. from +1 H. to 97H.	Granit-fractwater-2-G.P.M.	185	186
Welded Liner installed	Granit-med. w/fracts.	186	340
Threaded Diam. from ft. to ft.	Granit-hard	340	560
Perforations: Yee No X	7 1940 11 15 1		
Type of perforator used		12.4	219
SIZE of perforationsin. byin.			
perforations from th. to th.			- 500
perforations from ft. to ft.		-	
Screens: Yes No X			
Manufacturer's Name		-	
Type ModelNo			
DismBlot pizefremtt, tott.			
/lam,Slot eizefromft. toft.	The service of the se	175	The same
Gravel packed: Yes No X Size of gravel		7.5	100
Gravel placed from h. to fl.	The same of the sa	9 = 11 9	2
Surface seal: Yes No. To what depth? 18+ H.		20 1 2 20 2 3 1	
Material used in seal Bentonite	17 77 1 1 1 pm	425	12.00
Did any strata contain unusable water? Yes No. X Type of water?	<u> </u>	94.8	1
Type of water? Depth of strata Method of sealing strata off	[3]		183
PUMP: Manufacturer's Name	JUN 1 5 1993 !		- 193
Type: H.P. H.P.	in day is a cos		_
WATER LEVELS. Land-auriace elevation			
Static level 60 tt. below top of well Date 5/24/93 tt.			124
Artesian pressure ibs. per square inch Date	As a subspace on the first of the subspace of	Kanada T	157
Artesian water is controlled by(Cap, valve, etc.))	The section of the se	6 pa %	
WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 5/20/93 , 19. Completed 5/214		_,10_93
Was a pump jest made? Yee No If yee, by whom?	WELL CONSTRUCTOR CERTIFICATION		1 3 3
Yield: pal./min. with ft, drawdown after hrs.	WELL CONSTRUCTOR CERTIFICATION:		
Adr test approx. 1-G.P.M. "	I constructed and/or accept responsibility for constr and its compliance with all Washington well const	truction at	andards.
Decours date (Non-lake and analysis and the first lake and analysis and the first lake and analysis analysis and analysis analysis and	Materials used and the information reported above a knowledge and belief.	re true to	my best
Recovery data (time taken as zero when pump turned off) (water level measured from wall top to water level)			
Time WaterLevel Time WaterLevel Time WaterLevel	NAME J & J DRILLING INC	10.750	. 1
	(PERSON, FIRM, OA CORPORATION)	(TYPE OR	
	Address S 5613 Linke Rd. Greenscres,	WA 990	116
Date of test	1 1 00		

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- @ CO

File Original and First Copy with Department of Ecology Second Copy—Owner's Copy Third Copy—Driller's Copy

מעבעו עבאהו

משוווא חוב השום מווחלוו חוב וווולוווושחלוו לוו חוום

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WATER WELL REPORT

Sud Card No	060480	#2
Wigue Wee		

STATE OF WASHINGTON

(1) OWNER: Name(b) (6)		(b) (6) Addreat		
,	OCATION OF WELL: County	Spokane	SE _M SW _{M Sec} 36 T. 2	· l.	1.1.
(2	STREET ADDDRESS OF WELL (or nearest address)	16000 St	oughton, Freeman, WA	4N., R	
(3	PROPOSED USE: Di Domestic Industrial D	Municipal	(10) WELL LOG OF ABANDONMENT PROCEDU	RE DES	CRIPTION
(4)	TYPE OF WORK: Owner's number of well (if more than one)	Other 🗆	Formation: Describe by color, character, size of material an thickness of aquifers and the kind and nature of the material in earlies at one entry for each change of information.	d structure	e, and show penetrated,
	Abandoned New well 23 Method: Duo	Bored []	MATERIAL	FROM	TO
	Deepened ☐ Cable ☐ Reconditioned ☐ Rotary ②	Driven 🗆 Jetted 🗆	Topsoil	0	1
(5)	Tiolary 2	201100	Clay-brnhard	1	8
(~)	Diameter of well	inches.	Granit-decomposed	8	108
	Drilled 30Ω leet. Depth of completed well 300	<u>On.</u>	Gaanit-soft to med. Granit-med. w/fracts.	108	230
(6)	CONSTRUCTION DETAILS:		Granit-fractwater-20-G.P.M.	230	270
	Casing installed: 6 Diam. from +1 H. to	119#_	Granit-med.	270	275
	Welded Liner installed Diam. from tt. to	300		275	300
	Perforations: Yes No X	n.			
	Type of perforator used	}			
	SiZE of perforations in. by				
	perforations fromft. to	"			
	ti, toti.				
	perforations fromft. to			\longrightarrow	
	Screens: Yes No X				
	Manufacturer's Hame				
	Type Model No				
	am	n, [
<u>~</u>	Siol eizefromH. to	H.			
	Gravel packed: Yes No Size of gravel				
	Gravel placed from H. to				
	Surface segi; Yee 🗷 No To what depth? 18+				
	Material used in seal Bentonite				
١	Old any atrata contain unusable water? Yes No 🕱	-			
1	Type of water?Depth of strate				
	delhod of seating strate off		int t E Man	$-\bot$	
<i>'</i>)	PUMP: Manufacturer's NameH.P.	<u> </u> -	JUN 1 5 P		
	WATER LEVELS. Land-surface elevation		ARTMENT OF ECO.		
	itatic level 60 ft. below top of well Date 5/25/	93 1.	TERN REGIONAL Grand		
٨	riesian pressureibs. per squere inch_Date				
	Artesian water is controlled by (Cap. valve, etc.))				
9) \	WELL TESTS: Drawdown is amount water level in laws of the	-1-11-1	Work elerted 5/24/93 , 19. Completed 5/25/		(n 93
n	ram a pump test made? Yes No If yes, by whom?		, iv. Completed 21.21		19_23
Y	leld: 20 gal./min. with it. drawdown after	hrs.	WELL CONSTRUCTOR CERTIFICATION:		
	Air test approx. 20-G.P.M	11	I constructed and/or accept responsibility for construction the compliance with all Washington well constru	tion of th	le well,
R	scovery data (time taken as zero when pump turned off) (water level me		Materials used and the information reported above are knowledge and belief.	true to n	ngarde. ny best
	Man tob to matel (evel)		VIIOMIADŲA AUG DĖIJAI.		
	na WaterLevel Tima WaterLevel Time Wa	ler Level	NAME J & J DRILLING INC		
				TYPE OR P	RINT)
-			Address S 5613 Linke Rd. Greenacres, V		
_	Date of test		11 1 00		
В	iler testgal./min. with ft, drawdown after	h= (Signed License No.	196	2
	testgal./min. with atom set at fi. for		Contractor's (WELL DRILLER)		
Art	salan flow g.p.m. Date	me. F	degistration Date 5/27/	-	. 93
	mperature of water Was a chemical analysis made? Yes N	60	Veid TI		¥

File Original and First Copy with 31712
Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

Application New 27474

ppy — Owner's Copy by — Driller's Copy	٦,	STATE	OF	WASHINGTO

N WELL

Permit No AAL 153

(1) OWNER	(b) (6)	Address (b)	(6)				
	ION OF WELL: County SPOKANE		-5°E	بر برین کرین	see	3.N., R.	ill was
Searing and dis	stance from section or subdivision corner 15921	E ELL		Rd			
		(10) WEL	L LOG:				
(3) PROPOS	SED USE: Domestic & Industrial Municipal Firigation Test Well Other	Formation: D	escribe by coss of aguifer	s and the kind	size of materio	the mater	iai in eaci
(4) TYPE (OF WORK: Owner's number of well	stratum pene		TERIAL	ntry for each o	FROM	TO
(1) 1111	New well Method: Dug 🗌 Bored 🗍	BROW				0	2
	Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐	BROW			CLAV	2	192
	Reconditioned Rotary Jetted	GREV	BASA	LET HA	1Rd	192	210
(5) DIMENS	SIONS: Diameter of well inches.						<u> </u>
(6) CONSTI	RUCTION DETAILS:					ļ	 -
Casing i	installed: 6 Diam. from 6 ft. to 110 ft.						
	ided []ft. toft.						
Wel	ded B That is the state of the state						
Perforat	tions: Yes No D				4		
Type	e of perforator used					<u> </u>	
SIZE	of perforations					 -	ļ
	perforations from					ļ	
**********	perforations from ft. to ft.		F 5	@ B 1 V	7-12-13	 	
Farcons			1101-5	<u> </u>		 	
Screens	Yes No D		105	- A W	2	 	<u> </u>
Type	Model No		1001-1	# C 68			
. Dlan	n Slot size from ft. to ft.		0	CT. 219	98 Manh)		
Dian	n		DEP/	ARTMENT OF EC	OLOGY		
	packed: Yes No Size of gravel:		EASI	EHN REGIONAL	Office)		
Grav	vel placed from ft. to ft.						
Surface	seal: yes No To what depth? ft.				·	ļ	
Mate	erial used in seal BENTON //E	J				ļ	
Did	any strata contain unusable water? Yes [] No [2]	1				 	
	e of water? Depth of strata					 	
(7) PUMP:	Manufacturer's Name				_		
Type	9!						
(8) WATER	LEVELS: Land-surface elevation above mean sea level						
Static level	80 ft. below top of well Date 9-6-98						
	re					ļ	
Artes	sian water is controlled by(Cap, valve, etc.)					<u> </u>	ļ
(9) WELL '	TESTS: Drawdown is amount water level is		0- 1	, 1928		-6-	.90
Was a pump tes		Work started.				0	, 19/0
Yield:	gal./min. with ft. drawdown after hrs.	WELL DI	RILLER'S	STATEMI	ENT:		
7/B RR	ESSURE 40-50 GAL.				jurisdiction	and this	report is
'.,,	н в	true to the	best of my	knowledge	and belief,		
Recovery data measured fr	(time taken as zero when pump turned off) (water level om well top to water level)	NAME RA	1/1/	. 111.7	DO		
	er Level Time Water Level Time Water Level	NAME CO	(Person	, firm, or corpo	oration) (Type or p	rint)
**************		Address 5	910 5	CAMI	DAFIL	Re	4
		Address.U	RACH	Ford	WAS	7403	0
Date of test		[Signed].	2.7	Pw!	287		
	gal./min, withft. drawdown afterhrs.y	Loigned J.	Cyo"	(We	ll Driller)	,	
Artesian flow	g.p.m. Date	License No.	128	(3	Date 9-	6	1998
Temperature of	water Was a chemical analysis made? Yes [] No []	I PULCETING NAO!		~			, -v

	2500	
•		
	Contract of the last	
- 11	CONTRACT STAFF	

Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	CURRENT		
ECOLOGY	Notice of Intent No. WE13541		
Construction/Decommission ("x" in circle)			
	Unique Ecology Well ID Tag No. BCE817		
Notice of Intent Number	Water Right Permit No.		
PROPOSED USE: Domestic Industrial Municipal	Property Owner Name (b) (6)		
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other	Well Street Address15709 E Elder Road		
TYPE OF WORK: Owner's number of well (if more than one) 2	City Valleyford County Spokane		
⊠ New well ☐ Reconditioned ☐ Method: ☐ Dug ☐ Bored ☐ Driven ☐ Cable ☐ Rotary ☐ Jetted ☐ Despended ☐ Cable ☐ Rotary ☐ Despended ☐ Despended ☐ Cable ☐ Rotary ☐ Despended ☐ D	Location SW1/4-1/4 SE1/4 Sec 1 Twn 23N R 44E	EWM	
DIMENSIONS: Diameter of well 6 inches, drilled 220 ft.	(s, t, r Still REQUIRED)	0	,
Depth of completed well 220ft. CONSTRUCTION DETAILS		ww	МП
Casing Welded 6" Diam, from +1 ft, to 79 ft.	Lat/Long Lat Deg Lat Min/Sec		
Installed: Liner installed 4" Diam. from 10 ft. to 220 ft. Threaded "Diam. From ft. to ft.	Long Deg Long Min/Sec		
Perforations: Yes No	Tax Parcel No. (Required) 43013.9038		
Type of perforator used bit	CONSTRUCTION OR DECOMMISSION PROC	EDURE	
SIZE of perfs 3/8 in, by in, and no, of perfs from 170 ft. to 220 ft.	Formation: Describe by color, character, size of material and struct nature of the material in each stratum penetrated, with at least one		
Screens: Yes No K-Pac Location	of information. (USE ADDITIONAL SHEETS IF NECESSARY.))) Circinge
Manufacturer's Name	MATERIAL	FROM	TO
Type Model No	Topsoil Clay, Brown & Medium	2	2 51
Diam. Slot size from ft. to ft.	Clay, Brown w/ Sand	51	56
Gravel/Fitter packed: ☐ Yes ☒ No Size of gravel/sand	Clay, Brown & Medium	56	63
Materials placed fromft. toft.	Basalt, Soft & Broken	63	69
Surface Seal: Yes No To what depth? 18+ft.	Basalt, Medium Basalt, Med. to Hard	69 ·	121
Material used in seal <u>Baroid Bentonite</u> Did any strata contain unusable water? ☐ Yes ☑ No	Basalt, Fractured w/	183	194
Type of water? Depth of strata	Shale, Black		
Method of sealing strata off	Basalt, Highly Fractured	194	206
PUMP: Manufacturer's Name	Water 100+gpm Basalt, Soft	206	217
PUMP: Manufacturer's Name	Basalt, Fractured w/	217	220
WATER LEVELS: Land-surface elevation above mean sea level ft.	Shale, Grey		
Static level 130ft. below top of well Date 9/14/2011			
Artesian pressure lbs. per square inch Date		***************************************	
Artesian water is controlled by (cap, valve, etc.)			
WELL TESTS: Drawdown is amount water level is lowered below static level	Recommended pump set		I
Was a pump test made? ☐ Yes ☒ No If yes, by whom? Yield:gal/min. withft. drawdown afterbrs.	depth is 210 feet.		
Yield: gal/min. with ft. drawdown after hrs.			
Yield:gal/min_withft. drawdown afterhrs.			
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)			
Time Water Level Time Water Level Time Water Level			
	OCT 2 7 2011		
Date of test	DEPARTMENT OF ECOLOGY		
Bailer testgal/min, withft, drawdown afterhrs,	EASTERN REGIONAL OFFICE		
Airtest 100+ gal/min. with stem set atft. forhrs.			
Artesian flowg.p.m. Date	Start Date 9/13/2011 Completed Date 9/	/14/2011	
Temperature of water Was a chemical analysis made? ☐ Yes 🖾 No			
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept response construction standards. Materials used and the information reported above are true		Washingto	on well
☑ Driller ☐ Engineer ☐ Trainee Name (Print) Brian Mosset	Drilling Company J & J Drilling, Inc.		
Driller/Engineer/Traince Signature Vin Comfort	Address 17313 East Linke Road		
Driller or trainee License No. 2139		/A, 99016	
IF TRAINEE: Driller's License No:	Contractor's		
Driller's Signature:	Registration No. JJDRII-177KU Date 9/	15/2011	

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

nolleation	NO.				

Permit No.

(1) OWNER: Name	Address (b) (6)		036
(2) LOCATION OF WELL: County JPOKANE		.3.n., r.5	
	look & Freeman ist ad	deter	
(3) PROPOSED USE: Domestic (2) Industrial [Municipal [(10) WELL LOG:		
Irrigation Test Well Other	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of t stratum penetrated, with at least one entry for each ch	and struct	cture, and al in each
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM	TO
New well Method: Dug Bored [0- 2 Brown too soil	0	2
Deepened Cable Driven Reconditioned Rotary Jetted	Wellow Clay	2	30
(E) DYMENICIONS	Broken batalt	30	44/
(5) DIMENSIONS: Diameter of well inches. Drilled / 40 ft. Depth of completed well ft.	Black hard bosalt	44	140W9
(6) CONSTRUCTION DETAILS:			
Casing installed: Dlam. from Q tt. to tt.			
Threaded "" Diam. from ft. to ft. Welded "" Diam. from ft. to ft.			
Perforations: Yes No ID			
Type of perforator used			
SIZE of perforations in. by in. in. by in. in. perforations from in. ft. to it.			·
perforations from ft. to ft.			
perforations from ft. to ft.			
Screens: Yes No			
Manufacturer's Name			
Diam, Slot size from ft, to ft.			
Dlam, Slot size from ft, to ft.			
Gravel packed: Yes No Size of gravel;			
Gravel placed from ft. to ft.			
Surface seal: Yes No Q. To what depth? ft.			
Material used in seal	100 100 100 100	E PART OF	4 <u>4.h</u>
Did any strata contain unusable water? Yes No Z	The state of the s	g Land	
Type of water? Depth of strata		12021	<u> </u>
(7) DIIMD.	MAY 4 - 19	88	
(7) PUMP: Manufacturer's Name			
20) MAMED I PAFI C. Land-surface elevation	Ulfavorial of Ech		
(8) WATER LEVELS: Land-surface elevation above mean sea level	Spiritae needingi g	FFICE	
Artesian pressurelbs. per square inch Date			
Artesian water is controlled by(Cap, valve, etc.)			
(a) TYPET T TREETIC. Drawdown is amount water level is			
Was a pump test made? Yes \(\bar{\bar{\bar{\bar{\bar{\bar{\bar{	Work started 2 2 9 1988 Completed 3	4	., 1958.
Yield: gal/min, with ft, drawdown after hrs.	WELL DRILLER'S STATEMENT:		
n n n	This well was drilled under my jurisdiction ar	nd this re	eport is
n n n n n n n n n n n n n n n n n n n	true to the best of my knowledge and belief.		
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	NAME (BOY) J. W) OUT		
Time Water Level Time Water Level Time Water Level	(Person, firm, or corporation) (Ty	pe or prir	179030
	Address R- 1 BOX 96 Rouford	1 W	<u>ن</u>
<u> </u>	2 1 P 2 - h		
Date of test	[Signed] Doy J. Well Drilley		
Bailer test, 2.5 gal/min, with ft, drawdown after	/ / / / / / / / / / / / / / / / / / /		00
Temperature of water	License No	,	19. <i>(</i>).()

File Original and First Copy with Department of Ecology

WATER WELL REPORT

·Application, No.	••
-------------------	----

•	Thir	d Copy — Driller's Copy (b) (6) STATE OF V	VASHINGTON Permit No		
		OWNER: Name	(b) (6) Addres		
í	_	LOCATION OF WELL: County Spukkary -		N., R.	И.УW.M.
1		ring and distance from section or subdivision corner .			
	(3)	PROPOSED USE: Domestic 🗇 Industrial 🗆 Municipal 🗍	(10) WELL LOG:		
		Irrigation Test Well Other	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of the stratum penetrated, with at least one entry for each cha	and stru e materi	cture, and al in each
	(4)	TYPE OF WORK: Owner's number of well (if more than one)		FROM	TO TO
		New well	TOP 50,1	· ø	<i>j</i> .
		Reconditioned Rotary Jetted	Lt-Bra, Clay - Hord	1	35
	(5)	DIMENSIONS: Diameter of well inches.	Basolt	35	48
		DIMENSIONS: Diameter of well inches. Drilled Depth of completed well it.	BAIRIT- Very HARY	60	140
	(6)	CONSTRUCTION DETAILS:	Cindon - wy water	140	180
	, ,	Casing installed:			
		Threaded ft. to ft.		<u>-</u> -	
	,	Welded Diam. from ft. to ft.			
		Perforations: Yes No Type of perforator used			·
		. SIZE of perforations in, by in,			
		perforations from ft. to ft.			
		perforations from			•
		Screens: Yes No C		-	
١		Manufacturer's Name			
		Type			
!)	Diam Slot size from ft. to ft.			
		Gravel packed: Yes No Size of gravel:	DECEN	/ 5	
		Gravel placed from ft. to ft.			<u>))</u>
		Surface seal: Yes No D To what depth? ft.	NOV ~ 5 191	81	
•		Material used in seal Sentus 50	- "YFPARTVERIT OF II	COLO	7
		Did any strata contain unusable water? Yes \(\bar{\text{L}}\) No \(\bar{\text{C}}\) Type of water? Depth of strata	SPOKANE REGIONAL		
	_	Method of sealing strata off			
)	(7)	PUMP: Manufacturer's Name			
		Type: H.P.			
	\ - <i>/</i>	WATER LEVELS: Land-surface elevation 260 ct.			
		levelft. below top of well Date 9-23.			
	Altes	ian pressure			

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Address 5.6

G-23 18 / Completed

Well Driller)

Work started...

..... Date. 9-

.....g.p.m. Date.....

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Was a pump test made? Yes [] No [] If yes, by whom?...

Approx.

gal./min. with

Drawdown is amount water level is lowered below static level

ft. drawdown after

.....ft. drawdown after...

IS PM

(USE ADDITIONAL SHEETS IF NECESSARY)

hrs. ١,

a

Date of test ..

Artesian flow.....

Bailer test.....gal./min. with.....

(9) WELL TESTS:

Yield:

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy (1) OWN

Wallality the Data allutol the Illiothlation on the TYELL REPORT

Department or Ecology aves NO!

WATER WELL REPORT

Application No

Second Copy — Owner's Copy Third Copy — Duller's Copy	STATE OF WASHINGTON	Permit No
(1) OWNER: Name (b) (6)	Address(b) (6)	.WA99
LOCATION OF WELL: County SI	POKANE W15 14	NE 14 Sec. 36 T.24 N. R.44EW.
(3) PROPOSED USE: Domestic & Indust	rial [] Municipal [] (10) WELL LOG:	50 1 CO S 2 A 24 L
[rrigation □ Test ¥	vell Other Formation: Describs by color, show thickness of aquifers an	character, size of material and structure, ar d the kind and nature of the material in eac east one entry for each change of formatio
(4) TYPE OF WORK: timber's number of the more than one!	Well .	
New well Method: I	Cable Driven Granite, black, ha	
(5) DIMENSIONS: Diameter of well prilled 50 .ft. Depth of completed	6 inches. W/water w/water	lack, broken 96 99
(6) CONSTRUCTION DETAILS:	N/A Granite, black, me	dium hard 99 142
Casing installed: "Diam. from Threaded "Diam. from Welded "Diam. from	ft. to ft ft ft ft ft.	
Perforations: Yes Ngcor		
SIZE of perforations in. 1	ti to	lled
perforations from	ft to	ized
Screens: yes No E		
Type	ft. to	
Gravel placed from		
Surface seal: Yes No To What d	epiht	OT 1 J 1987
Material used in seal	Yes No D	
(7) PUMP: Manufacturer's Name	н.Р	
(8) WATER LEVELS: Land-surface eleva above mean sea le statue tevel 33 th. below top of wel lbs per square inch	i Date 9/21/87	
	ap, valve, etc.)	18 87 Completed 9/21 19.8
(9) WELL TESTS: Drawdown is amount lowered below static was a pump test made? Yes I None if yes, by w Yield: 9 gal, min. with ft. drawdow if the drawdow in the state of the s	hom? we after hre. WELL DRILLER'S S	TATEMENT:
Recovery data (time taken as zero when pump tun measured from well top to water level)	med off) (water level NAME PONDEROSA D	RILLING & DEVELOPMENT INC. m. or corporation) (Type or print)
	Address E. 6010 Bro	
Birrer test. gal/min. with. It drawd. Artesian flow. g.p.m. Date	Signed] Louis & Hanner	(Well Driller)
	s made! Yes No License No 1472	Date 9/21 , 19.8

ECY 050-1-20

Temperature of water

3
II OII HIID KYEII DEDOIL.
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: שמום מווחיסו חוב ווויסוווומחסוו סוו חווים
12
נאר
<u> </u>
ממו
כוו אימוומוונץ חוב המום מווחיטו חוב ווווס
1011 02
200
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2 55
7
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Temperature of water _____ Was a chemical analysis made? Yes ____

__g.p.m. Dete

Airtest _ Artersian flow _

	•			W35	
Dep Sec	and Copy Owner's Copy	LL REPORT	Blan Card No. (W)		
	(b) (6)	Water Hight Permit	Но		
')					
١٠	LOCATION OF WELL: COUNTY SPAKANE		E 14500 36 1.2	<u>-4</u> N., A_	445 MY
(22)	STREET ADDRESS OF WELL (or nearest accress) WASHWATTON TZ	<u></u>			
(3)	PROPOSED USE: Domestic Industrial Municipal	(10) WELL LOG or ABANDON			
	☐ DaWater Test Well ☐ Other ☐	Formation: Describe by color, character, size and the kind and nature of the material in a change of information			
(4)	TYPE OF WORK: Owner's number of well (If more than one)	MATERIAL	Annual State of the State of th	FROM	то
	Abandoned New well	TOSOL		0	
(E)	Reconditioned ☐ Rotary ☐ Jetted ☐ DIMENSIONS: Diameter of well ☐ Inches.	BRN.CLAY-FIRM		1	125
(0)	Diffensions: Diameter of well 6 Inches. Diffled 325 feet. Depth of completed well 325 ft.	FRACTS, 1/26PMG)	75'		1 (3
/6\	CONSTRUCTION DETAILS:	CORANITE - HARD, &	FRAUTS.	125	325
(0)	Casing Installed: O Diam. from 1 / 1. to 19 / 1.				
	Perforations: Yes No 🕰				
	Type of perforationsin. byin.				
	perforations from				
	perforations from th. to the fit.				
	Screens: Yes No No Manufacturer's Name				
	Type Model No				
٠	tam. Skot size from ft. to ft. Jiam. Skot size from ft. to ft.				
	Gravel packed: Yes No Size of gravel Gravel placed from ft. to ft.		ALAMAN AND AND AND AND AND AND AND AND AND A		
	Burface seal: Yes No To what depth?				
	Type of water? Depth of strata Method of sealing strate off		DEGE!	W. E.	
	PUMP: Manufacturer's Name	a, i dest	NOV I A	1994	
8)	WATER LEVELS; Land-surface elevation above mean sea level		DEPARTMENT O EASTERN REGIO	ECOLOGY VAL OFFICE	
	Artesian water is controlled by (Cap, valve, etc.)	4 12/		ala.	- 9,
	WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes	Well CONSTRUCTOR CERTIF	19. Completed	4/2	L. 19 75
A	Yeks:gal./min. withh. drawdown afterhrs. PPROY: 1'2 GPM BY AIRTEST	I constructed and/or accept resp compilance with all Washington with all maching on the information reported above and	rell construction standards a true to my best knowled;	 Materials and belie 	used and
	## ### ### ###########################		CICHOMIAN (MACA		
		Address F.O. DOY VOC	A Licens		278
	Date of test	Contractor's	ini	1	,
	Baller test gal./min. with ft. drawdown after hrs. Airtest gal./min. with stem bet at ft. for hrs. Artestan flow a.p.m. Date	Registrations No. CARTEDUATES	Date	9/2	31.94

(USE ADDITIONAL SHEETS IF NECESSARY)

Ø5

EGY 050-1-20 (10/87) -1329-

File Original and First Copy with Department of Ecology

WATER WELL REPORT

Start Card No 009865

	ind Copy—Owner's Copy Copy—Driller's Zopy STATE OF	WASHINGTON Water Right Permit No		
(1)	OWNER Name	Address (b) (6)		
_	LOCATION OF WELL: County Spollmen	W & NEW Sec 36 T.	24 N., R.	44 W.M.
(28)	STREET ADDDRESS OF WELL (or noursel address Washing Teal	Rd. Thunder 197d.		
	PROPOSED USE: Domestic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDU		
	□ DeWater Test Well □ Other □	Formation: Describe by color, character, size of material a thickness of aquifers and the kind and nature of the material in a with at least one entry for each change of information.	nd structure each stratum	, and show penatrated,
(4)	TYPE OF WORK: Owner's number of well (it more than one)	MATERIAL	FROM	то
	Abendoned New well Method; Dug Bored Depend Cable Driven Driven	Top Soil BYN Plas	0	8
	Reconditioned Rotary Autted	Decomposed Expairs	8	12
(5)	DIMENSIONS: Diameter of well	Count Soft	/2_	83
	Drilled 200 feet. Depth of completed well 280 ft.	Branit Mud.	PS	160
/B)	CONSTRUCTION DETAILS:	Exercit - Fred.	160	264
(0)	Casing installed:	EXPAIT - FIFT	2/1	270
	Highway Parent and the second	Experit - Mad.	370	280
	Threaded Diam. from 1.10 11.	OFF.		-
-	Perforations: Yes No.			
	Type of perforator used			
	SIZE of perforationsin. byin.			
	perforations fromft. toft.			
	perforations from ft. to ft.	•	<u> </u>	
	perforetions from ft. to ft.			
	Screens: Yes No P		[
	Manufacturer's Name			
•	Type Model No		 	
	Diam		 	
	Grave) packed: Yes No Size of gravel			
	Gravel placed from 11, to 17.			
	Surface seal: Yee No To what depth?		!	
	Material used in seal			
	Did any eleata contain unueable water? Yea No A	-		
	Type of water? Dapth of atrata			
	Method of sealing strate off			
(7)	PUMP: Manufacturer's Name		-	
	Туре:Н.Р	(† ·		
(8)	WATER LEVELS: Land-surface elevation above mean sea level Static level	·		
	Artesian pressure lite, per square inch. Date lite.			
	(Cap, valve, e10.))	Work started 9-2/ 17 Completed 9-	- 23-	
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes No Hyee, by whom?			
	Yield: get./min. with ft. drawdown after hra.	WELL CONSTRUCTOR CERTIFICATION:	tenation of	المسيدة
	0 0 1	i constructed and/or accept responsibility for cons and its compliance with all Washington well con-	struction a	tendards.
\mathcal{A}	17 7-37 5 6 PM "	Materials used and the information reported above knowledge and belief.	are true to	my best
	Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) Time Water Level Time Water Level Time Water Level	NAME DE Q COSILIAN FIRE.		
		Address 56/3 5 FINIS Rd ITA	(TYPE OF	PRINT)
٠.		Address 92		
<u>_</u>	Date of test	(Signed) On Control License)	40. 144	7
	Baller test gat./min. with stem set at ft, for bre.	Contractor's	-	r.C
	Artesian flowg.p.m. Date	No. JUDIT-/77Kh Date 9-	-27	ر 19 <u>موملي</u>
	Marian Ma			

WATER WELL REPORT	CURRENT Notice of Intent No. W208212	,,,,,,
Copy - Grand & Isl copy - Ecology, 2nd copy - owner, 3rd copy - driller	Vision Factor Well ID Too No. ALR!	592
Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No. ALR!	
Construction ()	Water Right Permit No.	
O Decommission ORIGINAL CONSTRUCTION Notice of Intent Number		
		n a
PROPOSED USE: Altomestic Industrial Municipal . Dewater Irrigation Test Well Other.	Well Street Address Thunder Mt.	Ra.
TYPE OF WORK: Owner's number of well (if more than one)	City County: S	pokane
New Well Reconditioned Method: Dug Bored Driven	Location1/4- 1/4 NE1/4 Sec. 36 T	wn 24 R 44 or one
□ Deepened □ Cable >□ Rotary □ Jetted	Lat/Long: Lat Deg	WWM
DIMENSIONS: Diameter of well 6 inches, drilled 640 ft.	(s,t,r still	Lat Minusec
Depth of completed well <u>640</u> ft.	(s,l,r sill REQUIRED) Long Deg Tax Parcel No. 44361.9044	Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No.	NI BRAZINA (IVI
Construction Details Casing Wedded 6 " Diam. from +1 ft. to 39 ft. Installed: M. Liner installed 4 " Diam. from 20 ft. to 640 ft.	CONSTRUCTION OR DECOMMISSION Formation: Describe by color, character, size of management of the color of the	ON PROCEDURE
Threaded Diam. from 11. 10 11. 10 11.		etrated, with at least one
Perforations: Yes & No	entry for each change of information. Indicate all v (USE ADDITIONAL SHEETS IF NECESSARY.)	vater encountered.
Type of perforator used	MATERIAL	FROM TO
SIZE of perfsin. byin. and no_of perfsfromft. toft.		0 1
Screens: Yes No K-Pac Location	Brn, Clay	1 9
Manufacturer's Name	Very Decomp. Granite-S	
Type Model No	Decomp. Granite-M, Frac	
Diam. Slot Size from ft. to ft. Diam. Slot Size from ft. to ft.	1/2 GPM @ 50'	222
	Granite-H	190 590
Gravel/Filter packed: Yes No Size of gravel/sand Materials placed from ft. to ft.	Granite-H, Decomp. Fract	
Materials placed fromft. toft. Surface Seal: X Yes No To what depth? 20+ft	water	
Materials used in scal Bentonite	Granite-H	630 640
Did any strata contain unusable water? Yes No		
Type of water?Depth of strata		
Method of scaling strata off		
PUMP: Manufacturer's Name		
Type:H.P		
WATER LEVELS: Land-surface elevation above mean sea levelft.		
Static level 360 ft. helow top of well Date	DEOR	
Artesian pressurelbs. per square inch Date Artesian water is controlled by	IN EUG	
(cap,valve, etc.)		
WELL TESTS: Drawdown is amount water level is lowered below static level.	JAN 2	5 2006
Was a pump test made? Yes No If yes, by whom?	DEPARTMENT	
Yield gal/min with ft. drawdown after hrs. Yield gal/min with ft. drawdown after hrs.	DEPARTMENT C EASTERN REGIC	NAL OFFICE
Yield:gal./min. withft. drawdown afterhrs.		NAC OFFICE
Recovery data (time taken as zero when pump turned off)(water level measured from well top to water level)		
Time Water Level Time Water Level Time Water Level		
Approx. 5 GPM by Airtest		
4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,		
Date of test and /min_with ft drawdown after hrs		
Bailer testhrs. Airlest		
Artesian flow g.p.m. Date	Start Date 10/11/05 Completed Date	10/13/05
Temperature of water Was a chemical analysis made? Yes No		
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibilities well construction standards. Materials used and the information rep	ported above are true to my best knowledge an	d belief.
Doller DEngager OTrainer Namertyan Benson Carpenter		
Drifter/Engineer/Trainee Signature	- Address 8918 N. Forker R	d
Driller or Trainee License No. 1278	City, State, Zip Spokane, Wa.	
If trainee, liceused driller's	Contractor's	10/14/05
Signature and License no.	Registration NCARPEDCO22JTDu	le

THE DEPAREMENT OF LOVINGY AVES INCT MAITAINTY HIS DAKA ANAVOL HIS IMPLIMATOR ON HIS MASH DEPORT

W 090909

	FWASHINGTON Water Right Permit No.	
// / / / / / / / / / / / / / / / / / / /	(b) (6)	
(2a) STREET ADDRESS OF WELL (or nearest address) 16909 E Wash:	. <u>14 SE 148≈ 36 π241</u> ington Rd Valleyford WA 99036	V_N,R44F
(3) PROPOSED USE: Domestic Industrial Deliver	(10) WELL LOG or ABANDONMENT PROCEDURE DE Formation: Describe by color, character, size of material and structure, and s and the kind and nature of the material in each stratum penetrated, with size	how thickness of soulier
TVBE OF WORK - Owner's number of well	change of information.	State of the Color
Abandoned New well Method: Dug Downword Cable Driven Reconditioned Rotary Description		200 468 468 472
(5) DIMENSIONS: Diameter of well 6 (note of Drilled 300 feet. Depth of completed well 500	. Water	472 500
Welded 4 Diem. from tt. to 500		
perforations from ft. to	t.	
Screens: Yes No X		
Dam sot see	n. OCT 2 5 357	
Gravel packed: Yes No X Size of gravel Gravel placed from	n. Cipri	
Surface seal: Yes No To what depth? Material used in seal Did any strate contain unusable water? Yes No Type of water? Depth of strate Method of sealing strate off		
(7) PUMP: Manufacturer's Name	en andgredenski germani med en er en	707
(8) WATER LEVELS: Land-surface elevation above mean sea level static level 80 t. below top of well Date 9/15/97 Artesian pressure the per square inch Date Artesian water is controlled by (Cap, valve, etc.)	Work Started 9/11/97 19. Completed 9/15 WELL CONSTRUCTOR CERTIFICATION: I constructed and/or accept responsibility for construction compliance with all Washington well construction standards	of this well, and its
(9) WELL TESTS: Drawdown is amount water level is towered below static level Was a pump test made? Yes No 1 / yes, by whom? Yield:gal./min. withti. drawdown afterhr		Plan
"Air Test 26' GPM " "Becovery data (time taken as zero when pump turned off) (water level measured from we top to water level) Time Water Level Time Water Level Time Water Level	Contractor's	
Date of test	(USE ADDITIONAL SHEETS IF NECESSA	ARY) - employer, For spe-

Was a chemical analysis made? Yes ...

Temperature of water

ECY 050-1-20 (9/93) * 1

ECL 050-1-20 (293) · · · Choliterm a nitrate

File Original and First Copy with Capartment of Ecology

talure diwater _ ...

WATER WELL REPORT

Start Card No. W067564

UNIQUE WELLILD. # acc-456

Second Copy — Owner's Copy Third Copy — Driller's Copy	STATE OF W	VASHINGTON	Water Right Permit No.		
OWNER: Name (b) (6)	A:	(b) (6)			
(2) LOCATION OF WELL; County	Spokane		. ne 1/4 ne 1/4 Sec	36 T. 24 N. R. 4	4_wm.
(2a) STREET / DDRESS OF WELL (or require at address)	same as abo	ove			
	Itrial Municipal	1 (10) WELL LC	OG OF ABANDONMENT PRO	OCEDURE DESCRIPTION)N
Dewater Tool	Well □ Other □	Formation: Describe and the kind and ris change of Information	by color, character, aize of material at ture of the material in each stratum (nd structure, and show thickness penstrated, with at least one en	iry for each
(4) TYPE OF WORK: Owner's number of well (Il more than one)		C.L.	MATERIAL	FROM	то
Abandoned	t: Dug 🖸 Bored 🛈	clay-bro	พท	0	б
Denegaed 🗆	Cable □ Driven□ Rotary ⊠ Jetted □		decomposed	6	25.
THE STATE OF THE S	611 Inches		tan-soft	25	40
(5) DIMENSIONS: Diameter of well	140 t	granite-	grey-med.	40	95
Drilled 140 feet. Depth of completed well		granite	w/clay-red		100_
(6) CONSTRUCTION DETAILS:		granite-	tan-soft	100	140_
Casing installed: 6" Diam from +	13 n. to 274 n.				
Walded X) Dism. (1070	M. to	6" drive	shoe installe	d	
Threaded Diam. from	II W	1 hour d	evelopment		
Perforations: Yes No L		recovery	-fair pvc liner inst	called	
Type of perforator used	in.	135. 4.	DVC TIMET THE	-0.1.00	
SIZE of perforations in. b	t. mti				
perforations from	fr. toft.				
perforations from	_ ft. toft.				
Manufachuse's Name					
Tura	Model No.				
hem Sigt size from	it. toit.				
Diam. Slot size from	t. tot	ļ			
Gravel packed: Yes No K Size of g	pravel				
Gravet placed from ft. to		-			
Surface seel: Yes X No To what de	pth7t.				
Material used in seal bentonit	e No 🖄				
Did any strata contain unusable water? Yes	No Elli		a g g	BIVBI	
Type of water? Method of sealing strate off	, Dopin or avair			E V IS	
Method of sealing stress on					
(7) PUMP: Manufacturer's Name				2 3 1883 1141	
Type:	н.е				
(8) WATER LEVELS: Land-surface elevation above mean sea level	ft,	_	DEPARTM	ENT OF ECOLOGY	
Station have 20 At below t	op of well Date 10-10-9	5	EASTERN	REGIONAL OFFICE	
Alleadin process	guare Inch Date				
Artealan water is controlled by	(Cap, valve, etc.)	Work Started	10-10-95.19. Compl	oled <u>10-10-95</u>	— ¹⁹ —
(9) WELL TESTS: Drawdown is amount water lavel	is lowered below static level	WELLCONS	TRUCTOR CERTIFICATION	(:	
Was a pump test made? Yes . No . If y	res, by whom?	1	to the second compagability	for construction of this we	il, and its
Yield:	diamount tith	compliance	all Washington Wall Consid	uction stanualus, materials	UDOO WILL
air test is approxim	ate at time or	. 1	tion reported above are true to m		
drilling Recovery data (fime taken as zero when pump turned		1	illion Well Dr	illing, Inc.	
top to water fevel) Time Water Level Time Water Level			3 N. Perry Spo		7
- Into		- Accordant			
		(Signed)	WELL DAMEN	License No. 2/	
District Control		1	•		
Date of test	drawdown after hrs.	Contractor's Registration	.wd126d3 Date 1	0_10_95	10
Aireast 6 gal./min, with stem set at 1.5	5 5 It. for nrg.				_ 10
Adama forQ.p.m.	U4/8		(USE ADDITIONAL SHEETS	3 IF NECESSARY)	
Ten salute if water. Was chemical analysis	ייייקטפי יפס ר'ד נייס ר'די	1			

File Original with Department of Ecology Second Copy - Owner's Copy

FCY 050-1-20 (11/98)

WATER WELL REPORT

STATE OF WASHINGTON

Notice of Intent			
UNIQUE WELL I.D. 4	AEOI	0.0	
1/101	203	00	

) OWNER: Name	b) (6)		Add	(b) (6)		
a) STREET ADDRES	ELL: County Spokane ss of WELL: (or nearest address) Wid : Unknown	ashington		1/4NW1/4 Sec_36T24N	м.п. <u>44Е</u>	wm
) PROPOSED USE:	□ Domestic □ Industrial □ Irrigation □ Test Well □ DeWater	☐ Municipal ☐ Other		(10) WELL LOG or DECOMMISSIONING PRO Formation: Describe by color, character, size of m the kind and nature of the material in each stratur	aterial and str n penetrated,	ucture, and with at least
) TYPE OF WORK:	Owner's number of well (if more than	n one)_2		one entry for each change of information. Indicate	all water ence	ountered.
	Method:	G. 81		MATERIAL	FROM	то
	☐ Deepened ☐ Dug ☐ Reconditioned ☐ Cable	☐ Bored ☐ Driven		Topsoil	0	1
	☐ Decommission			Clay, Brown	1	13
DIMENSIONS:	Diameter of well	6	_inches	Granite, Medium	13	17
Drillad 400	feet. Depth of completed well	400	ft.	Granite, Slightly	1.7	28.
CONSTRUCTION	DETAILS			Fractured		
Casing Installed:		. 1		Granite, Medium w/	28	7.1.
★ Welded □ Liner installed		+1ft. to39		slight fractures	14 11	
☐ Threaded	blam, from _	ft. to	ft.	Granite, slightly	7.1	7.4
				fractured - Water 1/2		
Perforations:	CVes Who			map	-	
	☐ Yes X No			Granite, Medium w/	74	81
Type of perforator u			in.	slight fractures		
SIZE of perforations				Granite. Meanum to	81	97
	perforations from	п. ю	π.	soft	-	
				Chairman W.	37	140.
Screen?	TO AND DRAILS			slight fractures		M. 1. M
	nė			Granite, Highly	240	247
Туре	Slot Sizefrom	el No	tt.	fractured w/ some		
	Slot Sizefrom					
The state of the s				Granite. Medium w/	247	257
Gravel/Filter packs	id: ⊏Yes XiNo □ Size of gravel/san	nd		slight fractures		
Material placed from	1ff. to		ft.	Granite. Fractured	257	261
Surface seal:	X) Yes ☐ No To what depth? _	18+	11	Granite. Medium w/	261	301
Material used in sea	Bentonita			fractures		
Old any strata conta	in unusable water? ☐ Yes 🎾 No			Granite, Highly	301	307
Type of water? Method of sealing st	Depth of	strata		Fractured - Water 18		
				1/4gpm		
PUMP: Manufacture	er's Name			Granite Medium w/	307	400
Турв:		H.P		slight fractures		71111
Static level 19	and-surface elevation above mean sea to the	vell Date 8 / 1 3.	ft. /99		8/13/9	9
, Ivaluit Italer is CUI	(Cap, valve,	etc.)		WELL CONSTRUCTION CERTIFICATION:		
Was a pump test ma Yield:gal./r	wdown is amount water level is longing to take? ☐ Yes. (St No If yes, by whom? It. drawd the fit.	below static level	hrs.	I constructed and/or accept responsibility for concompliance with all Washington well construction and the information reported above are true to make the property of Print Name	n standards. Iy bast knowle	Materials use dge and belie
Yield:gat./r Recovery data (time well top to water leve	taken as zero when pump turned of we	wn a PD 2 7.1 ster level measured fr	ow 608	(Licensed Driller/Engine	License No.	-
Time Water I	Level Time Water Level	ASTERN SECION	resol IAL O	(Signed) (Licensed Driller/Engine	_License No. er)	0215
				Address 5. 5613 Linke Gre	enacre	s,WA99
Date of test Bailer test	and lonin with	and a trans			0.10	0./00
Airtest 7	gal./min, withft, dra gal./min, withft, dra		hrs. hrs.	Contractor's Registration No. JJDRII-177KU	_Date_8 / 2	0/99
~ ~ ~	garamin, with			(USE ADDITIONAL SHEETS IF N	ECESCY DA	
Temperature of wate	rWas a chemical enelysis me	ade? Tyes TNo	~-			_
050-1-20 (11/98)		, ,		Ecology is an Equal Opportunity and Affirmative accommodation needs, contact the Water Resource.		

File Original with Department of Ecology

WATER WELL REPORT

Notice of Intent W148285
UNIQUE WELL I D# AE9 100

W44 (Reconditioned)

Second Copy Owner's Copy Third Copy Driller's Copy

130789

STATE OF WASHINGTON

Water Right Permit No

(h) (c)	(b) (6)
(1) OWNER Nam	Address.
(2) LOCATION OF WELL County SPOKA NE NEH (2a) STREET ADDRESS OF WELL (or nearest address) 5 16305 WATTAX PARCEL NO 44362. 9027	SE 1/4 NW 1/4 Sec 36 T 24 NA 44 FORM 15H Rd, VALLEXFORD, WA 99036
(3) PROPOSED USE Domestic Industrial Municipal Irrigation Test Well Other	Formation Describe by color character size of material and structure and the kind and nature of the material in each stratum penetrated with at least
(4) TYPE OF WORK Owners number of well (if more than one) New Well Deepened Reconditioned Decommission Rotary Jetted	one entry for each change of information Indicate all water encountered MATERIAL FROM TO CLEANED MUD SAND 135' 320' LISTALLES 42' 5"-41 W 2LL
5) DIMENSIONS Diameter of well 6 Drilled feet Depth of completed well 720	inches STEEL CASING 278 320, ft 4"300 PVC 20' 320'
(6) CONSTRUCTION DETAILS Casing Installed Welded Liner installed PUC 4 Diam from 278 ft to 32 Threaded Diam from from ft to 32	Q_ft O_ft ft
Perforations Yes INO Type of perforation used SIZE of perforations Yes INO TO CH SIZE of perforations Yes INO Ye	7 k
Screens	EASTLE NEGION ECOLOGY II II
Gravel/Filter packed U Yes U No U Size of gravel/sand	
Surface seal	
7) PUMP Manufacturers Name	
Static level	
(Cap valve etc.) WELLTESTS Drawdown is amount water level is lowered below static level Was a pump test made? □ Yes □ No If yes by whom? Yieldgal /min withft drawdown after Yieldgal /min withft drawdown after Yieldgal /min withft drawdown after Recovery data (time taken as zero when pump turned off) (water level measured frowell top to water level) Time Water Level Time Water Level Time Water	Type or Print Name 30/12 (WO O A License No 12 8 3 (Licensed Driller/Engineer) Trainee NameLicense No
Date of lest Bailer lest 3, 5 gal /min with the drawdown after Artest gal /min with fit drawdown after gp m Date Temperature of water Was a chemical analysis made?	(Licensed Driller/Engineer) Address/57/0 S.C.IIMPBELLRC ROCKFOR 990 Contractors Pregistration No 2014 LWW024 IIS Date 2-23 03 (USE ADDITIONAL SHEETS IF NECESSARY)
ECY 050 1 20 (11/98)	Ecology is an Equal Opportunity and Affirmative Action employer For special accommodation needs contact the Water Resources Program at (360) 407 6600 The TDD number is (360) 407 6006

WATER WELL REPORT	CURRENT	
Original & 1 copy - Ecology, 2 copy - owner, 3 copy - driller	Notice of Intent No. WE13821	
ECOLOGY Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tug No. BCL-659	
Construction	Water Right Permit No.	
Decommission ORIGINAL INSTALLATION	(b) (6)	
Notice of Intent Number		
PROPOSED URR: Dannestic Industrial Municipal DoWnter Grigation Test Wall Other	Well Street Address 16724 E, Elider Rd.	
TYPE OF WORK: Owner's number of well (if more than one)	City Rockford County Spokane	
[7] New well 53 Recorditioned Method: [7] Dun [7] Bosed [7] Driven	Location NE1/4-1/4 NE1/4 Sec 01 Twn 23N R	
☐ Deepened ☐ Calife ☐ Ratary ☐ letted	(s, t, r Still REQUIRED)	WWW D
DIMENSIONS: Diameter of well 6 inches, drilled 0 st. Depth of completed well 200ft.		
CONSTRUCTION DETAILS	Lat/Long Lat Deg Lat Min/Se	
Casting Welded "Diam from ft. to R. Installed: Lines installed 4 Diam from ±2 ft. to 190 ft.	Long Deg Long Min/ Tax Parcel No. (Required) 43121.9010	
Threaded Diam. From ft, to ft.	Tax Larcer No. (Nequired) 45121.3010	
Perforations: Yes A No	CONSTRUCTION OR DECOMMISSION P.	
Type of perforator used	Pormation: Describe by color, character, size of material and a nature of the material in each stratum penetrated, with at least	
SIZE of pecisin_byin_and on_of pecisfromft. toft. Screens:	of information. (USB ADDITIONAL SHEETS IF NECESSA	
Manufacturer's Name Johnsons	MATERIAL Clean out silt with water	FROM TO 200
Typo Prepack Model No.	Clean out and trace	
Diam. 5" Siot alzo 10 from 190 ft. to 200 ft. Diam. Stot sizo from ft. to ft.	-	
Grave/Filter packed: Yes No Sizo of grave//sand	Assert Wheelingson Assertance and the secretarians	
Materials placed fromft toft	and the formation of the contract of the contr	
Surface Scal: Yes No To what depth?ft.	A A TOTAL CONTRACTOR OF THE PROPERTY OF THE PR	
Malorial used in seal		
Did any strata contain unusuble water?		
Method of sealing strata off		
PUMP: Manufacturer's Name		
WATER LEVELS: Land-surface elevation above mean sea levelft.		
Static level N/A R. below top of well Date		
Artesian prossurelbs. per square inch Date		
Artesian water is controlled by (pap, valve, etc.)		
WPLL, TESTS: Drawdown is amount water level is lowered below static level Was a nump test made? Yes No If yes, by whem?	- The second sec	and the second s
Yield:gal/min. withfl. drawdown afterlux		
Yfeld:gal/min. withth. drawdown afterhrs.		==-
Yield:gal/min. withft, drawdown afterhrs. Recovery data (tima taken as sero when pump turned off) (water level measured from		5 -} -
well top to water level)	DEC 2 1 2000	
Time Water Level Time Water Level Time Water Level	BLC 21 20	
International Applications in the Company of the Co	DEPARTMENT OF ECON	.OGY
the same of the sa	EASTERN REGISTAL OF	FICE
Date of test		
Airtest M/A gal/min. with stem set offt. forhrs		
Artesian flow p.n. Date	Start Date 11/14/11 Completed Date	11/15/11
Temperature of water Was a chemical analysis made?		
The second secon		
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept response	ibility for construction of this well, and its compliance with	all Washington well
construction standards. Meterials used and the information reported above are true Driller Engineer Traince Name (prof Louie Happer)		
Driller/Engineer/Trainee Signature	Drilling Company 1/20 Well Service Inc. Address 582 W. Hayden Ave.	
Driller or trainee License No. 1472	City, State, Zip Hayden , ID. 83	835
IF TRAINEE; Driller's License No:	Contractor's	

Registration No. H2OWESH01DW

Driller's Signature:

Date 11/16/11

WATER WELL REPORT	CURRENT Notice of Intent No.
Construction/Decommission ("x" in circle) 8953	Unique Ecology Well ID Tag No. ALSO 032
Construction/Decommission ("x" in circle)	Water Right Permit No.
O Decommission ORIGINAL CONSTRUCTION Notice of Intent Number 10 21.555.7	Property Owner Nam
PROPOSED USE: Domestic Industrial Municipal DeWater Irrigation Test Well Other	Well Street Address F 13918 STOUGHTON KD
TYPE OF WORK: Owner's number of well (if more than one)	City VALLEY PORD County: SPOKANSE Location 1/4-1/4 Nal/4 Sec 2 Twn 23 R 44 Or an
New Well ☐ Reconditioned Method: ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable ☑ Rotary ☐ Jetted	Lat/Long: Lat Deg Lat Min/Sec WWM
DIMENSIONS: Diameter of well	(s,t,r still REQUIRED) Long Deg Long Min/Sec Tax Parcel No. 43022, 9015
CONSTRUCTION DETAILS: Casing Welded " Diam. from # 3 ft. to 39 ft. Installed: Liner installed # " Diam. from 6 ft. to 170 ft. Threaded " Diam. from ft. to ft.	CONSTRUCTION OR DECOMMISSION PROCEDURE Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY.)
Perforations: Yes No Type of perforator used Sky // SNW	MATERIAL FROM TO
SIZE of perfsin. byin. and no. of perfs fromft. tott.	BROWN CLAY 0 35
Screens: Yes XNo K-Pac Location	MED FOR BACATT 35 51
Tuge Model No.	MED FRAG BASALT 3.5 51
Diarn. Slot Size from ft. to ft. Diarn. Slot Size from ft. to ft.	BROLEN BACATINICAY 51 60
Gravel/Filter packed: Yes No Size of gravel/sand	
Materials placed from ft. to ft. Surface Seal: Yes No To what depth? 0 - 21 ft.	MED/FRAC/RASAUT 60 141
Surface Seal: Yes No To what depth? 0-2/ft. Materials used in seal RENINITE	BROKEN BASONT/W/CLAY 141 170
Did any strata contain unusable water? Yes No	PROUN PROUN
Type of water?Depth of strata	II. IN CALL
Method of sealing strata off	
PUMP: Manufacturer's Name	
11)	
WATER LEVELS: Land-surface elevation above mean sea levelft. Static levelft. below top of well Dateft.	
Artesian pressurelbs. per square inch Date	
Artesian water is controlled by(cap, valve, etc.)	
WELL TESTS: Drawdown is amount water level is lowered below static level.	
Was a nump test made? Yes No If yes, by whom?	INE PETWENT
Yield: gal./min. with ft. drawdown after hrs. Yield: gal./min. with ft. drawdown after hrs.	
Yield: gal/min, with ft. drawdown after hrs.	OUT 2 t 2000
Recovery data (time taken as zero when pump turned off)(water level measured from	1 CC+ 31 24
well top to water level) Time Water Level Time Water Level Time Water Level	DEPARTMENT OF FCO.
	EASTERN REGIONAL OF FICE
Date of test	
Bailer test gal./min. with ft. drawdown after hrs. Airtest 10 gal./min. with stem set at 16.6 ft. for hrs.	
Artesian flowg.p.m. Date Temperature of water Was a chemical analysis made? \(\square \text{Yes} \square \text{No} \)	Start Date 10-24-05 Completed Date 10-26-05
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responses	onsibility for construction of this well, and its compliance with all
Washington well construction standards. Materials used and the information	reported above are true to the best knowledge and belief.
Driller Enginéer Traince Name (Print) TEFF Sharp	Drilling Company (REEN MT GONST & Drill IN) Address 018918 GREEN MT LN
Driller/Engineer/Trainee Signature	_ Address OV/8418 GWEEN MJ CN

Driller or Trainee License No.

If trainee, licensed driller's Signature and License no. _ City, State, Zip NEWMAN "

Registration No. GREENMC002PJ Date

Contractor's

Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 4/01)

WO1 438253 WATER WELL REPORT CURRENT Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller Notice of Intent No. WE13519 Construction/Decommission ("x" in circle) Unique Ecology Well ID Tag No. BCE816 ○ Construction Decommission ORIGINAL INSTALLATION Water Right Permit No. Notice of Intent Number Property Owner Name Mahn LLC ☐ Industrial ☐ Municipal PROPOSED USE: Domestic ☐ DeWater ☐ Irrigation Test Well Well Street Address Highway 27 TYPE OF WORK: Owner's number of well (if more than one) 2 County Spokane New well ☐ Reconditioned Mathod: ☐ Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Retury ☐ Driven Location SW1/4-1/4 NW1/4 Sec 35 Twn 24N R 44E ☐ Jelled DIMENSIONS: Diameter of well 6 facties, drilled 80 ft. (s, t, r Still REQUIRED) Depth of completed well 80ft. CONSTRUCTION DETAILS Lat Deg ____ Lat Min/Sec Lat/Long Casing Welded 6" Diam, from +1 fl. to 19 ft. Installed: Liner installed 4" Diam. from 10 ft. to 80 ft. Threaded Diam. From ft. to ft. Long Deg ____ Long Min/Sec ____ Tax Parcel No. (Required) 44352 9003 Perferations: Yes D No Type of performer used bit CONSTRUCTION OR DECOMMISSION PROCEDURE Formation: Describe by color, character, size of material and structure, and the kind and SIZE of perfs 3/8in. by _____in. and no. of perfs ____from 50 ft. to 80 ft. nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.) Screens: Yes No K-Pac Location Manufacturer's Name MATERIAL FROM _ Model No Topsoil Clay, Brown & Medium Slet size ____ from ____ fl. to ___ Slot size from 1. to Diam. Basalt, Fractured w/ Gravel/Filter packed: Yes No Size of gravel/sand_ Clay, Brown Materials placed from _____ (l. to _____ Basalt, Medium to Soft Surface Seal: Yes No To what depth? 18+ft. Basalt, Medium Basall, Broken Material used in seal Baroid Bentonite Did any strata contain unusable water? Basalt, Medium ☐ Yes M No Basalt, Fractured w/ Depth of strata Type of water? Shale, Brown Method of scaling strata off ___ Basalt, Highly Fractured PUMP: Manufacturer's Name Water 100+gpm Type: ___ Basall, Soft WATER LEVELS: Land-surface elevation above mean sea level _____ ft. Shale, Grey & Medium Static level 13ft, below top of well Date 9/9/2011 Artesian pressure _____ lbs. per square luch Date ____ Artesian water is controlled by ___ WELL TESTS: Drawdown is amount water level is lowered below stude level Was a primp test made? Yes No If yes, by whom? Yield: gal/min, with ft. drawdown after hrs. Yield: _______hrs. _____hrs. drawdown after _____hrs. Yield: _____nl/min. with ____ft. drawdown after _ Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) Time Water Level DEPARTMENT OF ECOLOGY Date of test ___ EASTERN REGIONAL OFFICE gal./min. with _____ft. drawdown after ____hrs. Airtest 100+ gal/min, with stern set at _____ft. for ___ hrs. Artesian flow g.p.m. Date Start Date 9/8/2011 Completed Date 9/9/2011 Temperature of water _____ Was a chemical analysis made? ☐ Yes ☑ No

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

	2 - 141 mily (1-10)	
Driller Engineer Truince Name (Print) Brian Mosset	Drilling Company J & J Drilling, Inc.	
Driller/Engineer/Trainco Signature	Address 17313 East Linke Road	
Driller or trainee License No. 2139	City, State, Zip Greenneres	WA 00016
IF TRAINEE: Driller's License No:		, WA, 99016
Driller's Signature:	Contractor's Registration No. <u>JIDRII-177KU</u>	Dute 9/16/2011

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Driller's Signature

ECY 050-1-20 (Rev 3/05)

180682

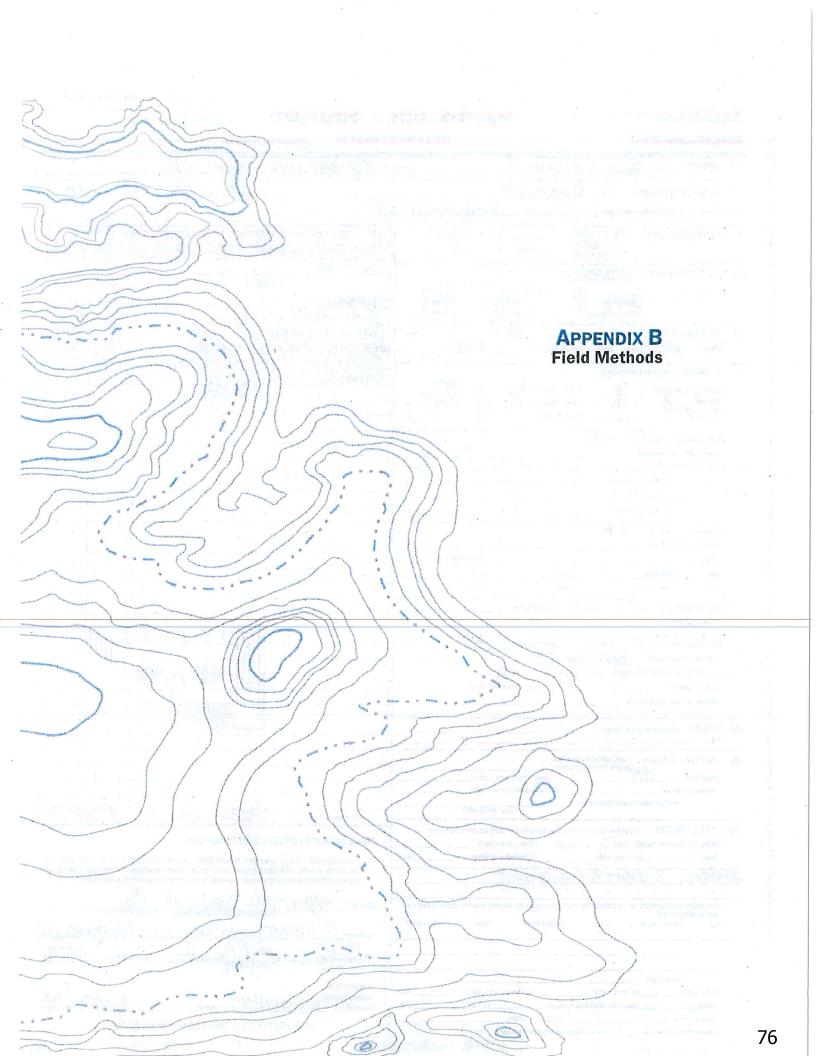
WATER WELL REPORT Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	CURRENT Notice of Intent No. WE03941		
L 0 1 0 s Y Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No. ALR979		
• Construction	Water Right Permit No.		
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name (b) (6)		
of Intent Number	Well Street Address Washington Road		
PROPOSED USE: Domostic Industrial Municipal			
DeWater Irrigation Test Well Other	City County Spoka	n 44 EWM	17
TYPE OF WORK: Owner's number of well (if more than one)	Location SW1/4-1/4 NE 1/4 Sec 36 Twn 24	MAW 01	d and
☑ New well	Lat/Long (s, t, r Lat Deg Lat	Min/Sec_	
DIMENSIONS: Dismeter of well 6 inches, drilled 340 ft.	Still REQUIRED) Long Deg Lo	ng Min/Sec	
Depth of completed well 340 ft. CONSTRUCTION DETAILS	Tax Parcel No.		
Contrar Mittalial 6 " Diam from 41 6 to 10 0			
Curring 7 Welded 6	CONSTRUCTION OR DECOMMISSION		
Perforations: Yes No	Formation: Describe by color, character, size of material and nature of the material in each stratum penetrated, with at least		
Type of perforator used 3/8" Spade Bit - See perf note below right SIZE of perfsin. byin, and no, of perfsfromft. toft.	information. (USE ADDITIONAL SHEETS IF NECES		
Screens: Yes No K-Pac Location	MATERIAL Clay, Brown and Hard	FROM 0	3
Manufacturer's Name	Granite, Decomposed	3	9
Type Model No. Diam. Slot size from fl. to fl. Diam. Shot size from fl. to fl.	Granite, Medium w/ Fractures	9	134
Diam. Slot size from fl. to fl.	Granite, Fractured - Water 2gpm	134	137
Gravel/Filter packed: Yes Z No Size of gravel/sand	Granite, Medium w/ Fractures	137	244
Materials placed from ft. to ft.	Granite, Slightly Fractured	244	271
Surface Seal: Yes No To what depth? 18+ ft.	Granite, Highly Fractured - Water 3+gpm	271	307
Material used in seal Baroid Bentonite	Granite, Soft to Medium	307	340
Did any strata contain unusable water?			
Type of water? Depth of strata	Set pump at 320 feet.		
Method of sealing strata off			
PUMP: Manufacturer's Name	PVC perforated from 80 to 100ft, 140 to 160ft,		
	220 to 240ft, 300 to 340ft		
WATER LEVELS: Land-surface elevation above mean sea levelft. Static level 62ft. below top of well Date 7/20/05			
Artesian pressurelbs. per square inch Date			
Addresion metals and miles in	II. VE. O E. II	W// 15:15	
· (csp, valve, etc.)		*** 15 11 1	
WELL TESTS: Drawdown is amount water level is lowered below static level			:
Was a pump test made? ☐ Yes ☑ No If yes, by whom?	III OCT - 5	7075	
Yield: gal/min, with ft. drawdown after hra. Yield: gal/min, with ft. drawdown after hra.			
Yield: gal/min, with ft. drawdown after brs.	DCDARTM-N.	v V	
Recovery data (time taken as zero when pump turned off) (water level measured from well	日本のではないできない。		
top to water level) Time Water Level Time Weter Level Time Water Level			
THE STATE ST			
- Date oftest			
Bailer testgal./min. withft. drawdown afterhrs.			
Airtest 5+ gal/min. with stem set at ft. forhrs.			
Artesian flow g.p.m. Date			
Temperature of water Was a chemical analysis made? Yes No	Start Date 7/18/05 Complete	d Date 7/20/0	5
WELL CONSTRUCTION CERTIFICATION: I constructed and/or according to the information well construction standards. Materials used and the information of the information	ept responsibility for construction of this well, and	its compliand belief.	oe with all
□ Driller □ Engineer □ Traince Name (Print) Don Anderson			
Driller/Engineer/Fraince Signature Don Auglerion	City, State, Zip Greenscres, WA 99016		
Driller or trainee Liceuse No. 1447	Contractor's		
If TRAINEE, Driller's Licensed No.		Date 7/22/05	
	Postanula	on Paud Onnor	tunity Employe

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Ecology is an Equal Opportunity Employer.

מטכש וזען אומוומוווץ מוכ במנם מומיטו מוכ ווווטוווממטוו טוו מוש געכוו ווכףטור	
נוום הבלמו חוופוני מו דבמומאל מחפש וגרו בב	

(*) O\ LC	opy — Driller's C(b) (6)		(b) (6)		
	WNER: Name	Adx	(b) (6)		
	OCATION OF WELL: COUNTY STOKADE	•	114 DE 14 Soc 36_ T. 2	2	lise .
(2a) 51	TREET ADDRESS OF WELL (or restreet address) WASHING	(ACT)	Zd.	<1 N' HZ	140
	ROPOSED USE: Domestic Industrial Municip		(10) WELL LOG OF ABANDONMENT PROCEDURE D	ESCRIPTI	ON
. ,	☐ Imigation Test Well ☐ Other		Formation: Describe by color, character, size of material and structure, and and the kind and nature of the material in each stratum penetrated, with		
(4) TY	YPE OF WORK: Owner's number of well		change of information.		
Ab		red □ Iven □	MATERIAL TAPES OF A	FROM	TO I
		tted []	BRU. CLAY - FIRM	1	9
	IMENSIONS: Diameter of well	Inches.	PRIZOMP, GRAVITE - SOFT	9	25
Drill	lled 200 feet. Depth of completed well 300	ft.	BUTISMP, GRADITE - MOD,	25	39
(6) CC	ONSTRUCTION DETAILS:		GRANITE - MED TO HARD,	34	30
. ,	seing installed: 6 Diam. from 11 ft. to 3	7 r	STATES (GIMO 150		
	elded of 4 Diam. from 5 ft. to 3	20_ tt.	3 DT F \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
Thi	nreaded blam. fromtt. to	ft.			
Per	rforations: Yes No 🔀				
	pe of perforator used				
SIZ	ZE of perforationsin. by				
_	perforations fromft. to	ft.			
_	perforations fromft. to				
Acr	reeria: Yes 🗆 No 🔽				
	nulacturer's Name				
	Model No.				
	un. Siot elze from fL to				ļ
	ernSkot sizeft. toft. to				
	avel pecked: Yes				
				16 3	
	- 1000 page, 440 Ed	fL			
	derial used in seal		ASSE 1 A COL	11,,,	
-	pe of water? Depth of strate				
•	thod of sealing strate off		A COLONIA COLO		
			DEPARTMENT (EASTERN !		<u> </u>
PU (F) Typ	UMP: Manufacturer's NameH.P			**	\vdash
	and the second of the second o				
•	aric level 35 Shove mean sea level 0, below top of well Date				
	toelan pressure Be, per equare (not) Deta				
	Artesian water is controlled by (Cap, valve, etc.)		alas	alo	2
a) Wi	ELL TESTS: Drawdown is amount water level is lowered below static is	ovel	Work Started	,110	3 10 Z
	is a pump test made? Yes		WELL CONSTRUCTOR CERTIFICATION:		
	old:ft. drawdown after	fire.	I constructed and/or accept responsibility for construction	of this we	ll, and
APP	ROY, 3 GPM BY AIRTEST	1)	compliance with all Washington well construction standard the information reported above are true to my best knowled;	s. Materials pe and belle	used at
	n p	М	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	_	
н	covery data (kme taken as zero when pump turned off) (water level messure to water level)		NAME CARPEDTER DRILLING CO		
Peo		eter Layed	1 Bushing 9	'n U	1 15
Place top		Ham Poles	Address 7. 144005 I DAIG LOS & COM)	ヤハベムイ	167.1
top			Address E, 14905 LONG FOR OW &	•	Eta
top	Water Level Time Water Level Time Wi		(Storage S. 1490S, Land Feet Old S	•	278
Time	Water Level Time Water Level Time With Date of test		(Skoran) Lloons	•	278
Time	Water Level Time Water Level Time Wi	hrs.	1 < 72 = LWW 1	•	275 275



APPENDIX B FIELD METHODS

Groundwater Sampling

Groundwater samples were obtained for chemical analysis from project wells on January 21 and 25, 2013. In wells W20 and W26, no existing operational pumps were available for use. In those wells, groundwater purging and sampling was performed consistent with the EPA's low-flow groundwater sampling procedure, as described in EPA (1996) and Puls and Barcelona (1996). Dedicated polyethylene tubing and a portable bladder pump (with the intake set at about 177 feet below top of well casing) were used for groundwater purging and sampling. During purging activities, water quality parameters, including pH, temperature, conductivity, dissolved oxygen, and turbidity were measured using an Horiba U-22 multi-parameter meter equipped with a flow-through cell. The meter was calibrated prior to use following manufacturer procedures. Groundwater samples were collected after (1) water quality parameters were stabilized; or (2) a maximum purge time of 30 minutes was achieved. During purging and sampling, drawdown was not allowed to exceed 0.3 feet and the purge rate was not allowed to exceed 400 milliliters per minute. Water quality parameter stabilization criteria include the following:

- Turbidity: ±15 percent for values greater than 5 NTU;
- Conductivity: ±3 percent;
- pH: ±0.1 unit;
- Temperature: ±3 percent; and
- Dissolved oxygen: ± 10 percent.

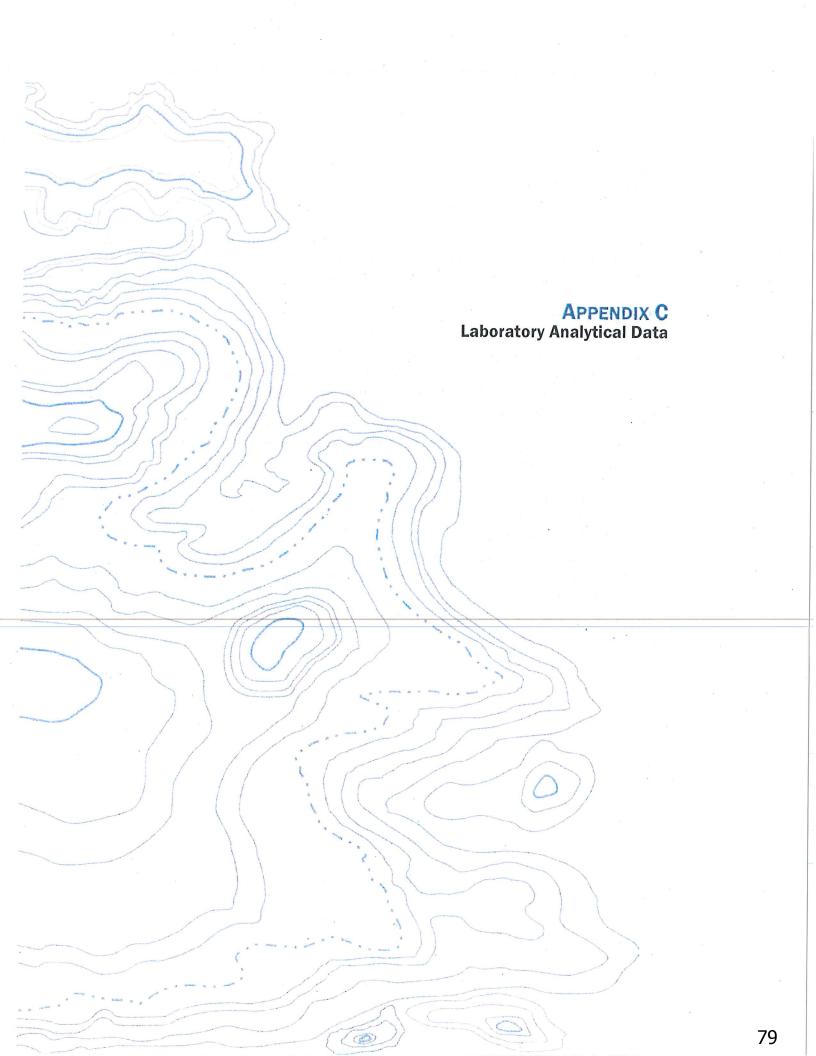
The Freeman Store and (b) (6) alls are active wells being used for domestic purposes. In these cases, samples were collected from an existing tap generally consistent with the US Geological Survey (USGS) National Field Manual for the Collection of Water Quality Data. For these samples, the tap was turned on and allowed to discharge groundwater for approximately 10 minutes at about 2 gallons per minute or until at least one well volume had been evacuated before sampling. Water quality parameters including pH, temperature, conductivity, dissolved oxygen, and turbidity were measured prior to sampling.

The FSD Production Well was sampled from a sampling port located within the FSD water system control building located in the north portion of the FSD campus, in a manner generally consistent with FSD standard source sampling procedures. Water quality parameters including pH, temperature, conductivity, dissolved oxygen, and turbidity were measured prior to sampling.

Each collected sample was transferred in the field from the sampling device to laboratory-prepared containers. Samples were placed into a chilled cooler and transported to TestAmerica Laboratories, Inc. of Spokane Washington following completion of sampling. Chain-of-custody procedures were observed and groundwater samples were kept cool during transport to the laboratory.



The water quality meter used to collect water quality parameter measurements was calibrated prior to use following manufacturer procedures.



APPENDIX C LABORATORY ANALYTICAL DATA

Samples

Chain-of-custody procedures were followed during transport of groundwater samples to the selected accredited analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results are included in this appendix.

Analytical Data Review

The analytical laboratory maintains an internal quality assurance/quality control program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted the following exceptions in the laboratory report.

- The calibration verification recovery for acetone was above the method control limits for each collected sample. However, the analyte was not detected and the laboratory indicated that the data were not impacted.
- The matrix spike and/or matrix spike duplicate were above acceptance limits for 1,1-dichlorobenzene, benzene, trichloroethene, toluene, and chlorobenzene in laboratory sample 13A0139-MS1.

Based on our data quality review, it is our opinion that these analytical data are of acceptable quality for their intended use.



THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Spokane 11922 East 1st. Avenue Spokane, WA 99206 Tel: (509)924-9200

TestAmerica Job ID: SWA0113

Client Project/Site: [none]

Client Project Description: Freeman

For:

Geo Engineers - Spokane 523 East Second Ave. Spokane, WA 99202

Attn: Jon Rudders

tandessector

Authorized for release by: 1/30/2013 9:23:48 AM

Randee Decker Project Manager

Randee.Decker@testamericainc.com

LINKS

Review your project results through
Total Access

Have a Question?



Visit us at: www.testamericainc.com This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Sample Summary

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
SWA0113-01	W20-012113	Water	01/21/13 13:02	01/25/13 12:40
SWA0113-02	W26-012113	Water	01/21/13 15:50	01/25/13 12:40
SWA0113-03	Freeman Store-012113	Water	01/21/13 14:30	01/25/13 12:40
SWA0113-04	(b) ₋₀₁₂₅₁₃	Water	01/25/13 11:15	01/25/13 12:40
SWA0113-05	School Well -012513	Water	01/25/13 11:50	01/25/13 12:40

Definitions/Glossary

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description	
M7	The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).	
C	Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.	

Glossary

RER

RL

RPD

TEF **TEQ** Relative error ratio

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Abbreviation	These commonly used abbreviations may or may not be present in this report.
*	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control

Page 4 of 20

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Lab Sample ID: SWA0113-01

Matrix: Water

Client Sample ID: W20-012113

Date Collected: 01/21/13 13:02 Date Received: 01/25/13 12:40

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Chloromethane	ND	3.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Vinyl chloride	ND	0.200	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Bromomethane	ND	5.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Chloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Trichlorofluoromethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,1-Dichloroethene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Carbon disulfide	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Methylene chloride	ND	10.0	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Acetone	ND C	25.0	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
trans-1,2-Dichloroethene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Methyl tert-butyl ether	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,1-Dichloroethane	ND.	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
cis-1,2-Dichloroethene	. ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
2,2-Dichloropropane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Bromochloromethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Chloroform	2.04	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Carbon tetrachloride	21,2	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,1,1-Trichloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
2-Butanone	ND	10.0	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,1-Dichloropropene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Benzene	ND	0.200	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,2-Dichloroethane (EDC)	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Trichloroethene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Dibromomethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,2-Dichloropropane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Bromodichloromethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
cis-1,3-Dichloropropene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Toluene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
4-Methyl-2-pentanone	ND	10.0	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
trans-1,3-Dichloropropene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	
Tetrachloroethene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,1,2-Trichloroethane	ND	1.00					1.00
Dibromochloromethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,3-Dichloropropane	. ND		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,2-Dibromoethane		1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
	ND ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
2-Hexanone	ND .	10.0	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Ethylbenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Chlorobenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,1,1,2-Tetrachloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
n,p-Xylene	ND	2.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
o-Xylene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Styrene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Bromoform	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
sopropylbenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
n-Propylbenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,1,2,2-Tetrachloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Bromobenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,3,5-Trimethylbenzene	ND .	1.00	ug/l		01/28/13 10:50	01/28/13 15:11	1.00

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Lab Sample ID: SWA0113-01

Matrix: Water

Client Sample ID: W20-012113

Date Collected: 01/21/13 13:02 Date Received: 01/25/13 12:40

Analyte	Result	Qualifier		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
2-Chlorotoluene	ND		1 1	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.0
1,2,3-Trichloropropane	ND		1	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.0
4-Chlorotoluene	ND		. 1	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
tert-Butylbenzene	ND		, 1	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,2,4-Trimethylbenzene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
sec-Butylbenzene	ND		1.	.00		ug/l	- 1	01/28/13 10:50	01/28/13 15:11	1.00
p-lsopropyltoluene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,3-Dichlorobenzene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,4-Dichlorobenzene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
n-Butylbenzene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,2-Dichlorobenzene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,2-Dibromo-3-chloropropane	ND		5.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Hexachlorobutadiene	ND		2.	.00		ug/l	,	01/28/13 10:50	01/28/13 15:11	1.00
1,2,4-Trichlorobenzene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Naphthalene	ND		2.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
1,2,3-Trichlorobenzene	ND		1.	.00		ug/l		01/28/13 10:50	01/28/13 15:11	1.00
Surrogate	%Recovery	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Dibromofluoromethane	93.6		71.2 - 14	3				01/28/13 10:50	01/28/13 15:11	1.00
Toluene-d8	113		74.1 - 13	5				01/28/13 10:50	01/28/13 15:11	1.00
4-bromofluorobenzene	98.2		68.7 - 14	1				01/28/13 10:50	01/28/13 15:11	1.00

Client Sample ID: W26-012113

Date Collected: 01/21/13 15:50

Date Received: 01/25/13 12:40

Matrix: Water

Analyte		Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane		, ND	0	1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Chloromethane		ND		3.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Vinyl chloride	4 = = =	ND		0.200		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Bromomethane		ND		5.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Chloroethane		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Trichlorofluoromethane		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
1,1-Dichloroethene		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Carbon disulfide		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Methylene chloride		ND		10.0		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Acetone		ND	С	25.0		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
trans-1,2-Dichloroethene		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Methyl tert-butyl ether		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
1,1-Dichloroethane		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
cis-1,2-Dichloroethene		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
2,2-Dichloropropane		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Bromochloromethane		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Chloroform		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Carbon tetrachloride	- J. F.	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
1,1,1-Trichloroethane		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
2-Butanone		ND		10.0		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
1,1-Dichloropropene		ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.00
Benzene		ND		0.200		ug/l		01/28/13 10:50	01/28/13 15:35	1.00

TestAmerica Spokane

5 6







Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Client Sample ID: W26-012113

Date Collected: 01/21/13 15:50 Date Received: 01/25/13 12:40 Lab Sample ID: SWA0113-02

Matrix: Water

Analyte	Result	Qualifier	₹ RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,2-Dichloroethane (EDC)	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Trichloroethene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Dibromomethane	ND -		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
1,2-Dichloropropane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Bromodichloromethane	- ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
cis-1,3-Dichloropropene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Toluene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
-Methyl-2-pentanone	ND		10.0		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
rans-1,3-Dichloropropene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Tetrachloroethene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
1,1,2-Trichloroethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Dibromochloromethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
,3-Dichloropropane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
,2-Dibromoethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
2-Hexanone	ND		10.0		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Ethylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Chlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
,1,1,2-Tetrachloroethane	· ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
n,p-Xylene	ND		2.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
-Xylene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
tyrene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
romoform	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
sopropylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
-Propylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
,1,2,2-Tetrachloroethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
romobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
3,5-Trimethylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
-Chlorotoluene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
2,3-Trichloropropane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Chlorotoluene	, ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
rt-Butylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
2,4-Trimethylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
ec-Butylbenzene	ND-		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Isopropyltoluene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
3-Dichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
4-Dichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
Butylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
2-Dichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
2-Dibromo-3-chloropropane	ND		5.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
exachlorobutadiene	ND		2.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
2,4-Trichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
aphthalene	ND		2.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
2,3-Trichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:35	1.0
urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
ibromofluoromethane	93.8		71.2 - 143				01/28/13 10:50	01/28/13 15:35	1.0
oluene-d8	112		74.1 - 135			191	01/28/13 10:50	01/28/13 15:35	1.0
-bromofluorobenzene	99.2		68.7 - 141				01/28/13 10:50	01/28/13 15:35	1.0

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Lab Sample ID: SWA0113-03

Matrix: Water

Client Sample ID: Freeman Store-012113

Date Collected: 01/21/13 14:30 Date Received: 01/25/13 12:40

Dichlorodifluoromethane Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane J-Dichloroethene	ND ND ND ND	1.00 3.00	ug/l ug/l	1	01/28/13 10:50	01/28/13 15:59	1.0
/inyl chloride Bromomethane Chloroethane richlorofluoromethane	ND		ua/l				
Bromomethane Chloroethane Frichlorofluoromethane		0.000			01/28/13 10:50	01/28/13 15:59	1.0
Chloroethane	ND	0.200	ug/l		01/28/13 10:50	01/28/13 15:59	1.0
richlorofluoromethane		5.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
1-Dichloroethene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
Carbon disulfide	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
Methylene chloride	ND	10.0	ug/l		01/28/13 10:50	01/28/13 15:59	1.
cetone	ND C	25.0	ug/l		01/28/13 10:50	01/28/13 15:59	1.
rans-1,2-Dichloroethene	ND .	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
lethyl tert-butyl ether	ND -	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
,1-Dichloroethane					01/28/13 10:50	01/28/13 15:59	1.
is-1,2-Dichloroethene	ND .	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
2-Dichloropropane	ND .	1.00	ug/l			01/28/13 15:59	1.
romochloromethane	ND	1.00	ug/l		01/28/13 10:50		
hloroform	ND .	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
arbon tetrachloride	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
1,1-Trichloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
Butanone	ND	10.0	ug/l		01/28/13 10:50	01/28/13 15:59	1.
1-Dichloropropene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
enzene	ND	0.200	ug/l		01/28/13 10:50	01/28/13 15:59	1.
2-Dichloroethane (EDC)	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
richloroethene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
ibromomethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
2-Dichloropropane	ND ,	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
romodichloromethane	. ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.0
s-1,3-Dichloropropene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
oluene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
Methyl-2-pentanone	ND	10.0	ug/l		01/28/13 10:50	01/28/13 15:59	1.
ans-1,3-Dichloropropene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
etrachloroethene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
1,2-Trichloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
bromochloromethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
3-Dichloropropane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
2-Dibromoethane	ND	1.00	ug/l	9	01/28/13 10:50	01/28/13 15:59	1.
Hexanone	ND	10.0	ug/l		01/28/13 10:50	01/28/13 15:59	1.
hylbenzene	ND	1.00	ug/l	3	01/28/13 10:50	01/28/13 15:59	1.
hlorobenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
1,1,2-Tetrachloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
	ND	2.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.0
p-Xylene Yylene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
Xylene		1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.0
yrene	ND					01/28/13 15:59	1.
omoform	ND	1.00	ug/l		01/28/13 10:50		
ppropylbenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.
Propylbenzene	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.0
1,2,2-Tetrachloroethane	ND	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.0
romobenzene	ND .	1.00	ug/l		01/28/13 10:50	01/28/13 15:59	1.0 1.0

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Client Sample ID: Freeman Store-012113

Lab Sample ID: SWA0113-03

Date Collected: 01/21/13 14:30 Date Received: 01/25/13 12:40

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
2-Chlorotoluene	ND		. 1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
1,2,3-Trichloropropane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
4-Chlorotoluene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
tert-Butylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
1,2,4-Trimethylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
sec-Butylbenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
p-Isopropyltoluene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
1,3-Dichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
1,4-Dichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
n-Butylbenzene	ND		1.00		ug/l	•	01/28/13 10:50	01/28/13 15:59	1.0
1,2-Dichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
1,2-Dibromo-3-chloropropane	ND		5.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
Hexachlorobutadiene	ND		2.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.0
1,2,4-Trichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.00
Naphthalene	ND		2.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.00
1,2,3-Trichlorobenzene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 15:59	1.00
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
Dibromofluoromethane	94.6		71.2 - 143				01/28/13 10:50	01/28/13 15:59	1.00
Toluene-d8	115		74.1 - 135				01/28/13 10:50	01/28/13 15:59	1.00
4-bromofluorobenzene	96.8		68.7 - 141				01/28/13 10:50	01/28/13 15:59	1.00

Client Sample ID: (b) -012513

Date Collected: 01/25/13 11:15 Date Received: 01/25/13 12:40 Lab Sample ID: SWA0113-04

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Chloromethane	ND		3.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Vinyl chloride	ND		0.200		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Bromomethane	ND		5.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Chloroethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Trichlorofluoromethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,1-Dichloroethene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Carbon disulfide	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Methylene chloride	, ND		10.0		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Acetone	ND	C	25.0		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
trans-1,2-Dichloroethene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Methyl tert-butyl ether	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,1-Dichloroethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
cis-1,2-Dichloroethene	ŅD		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
2,2-Dichloropropane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Bromochloromethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Chloroform	ND		.1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Carbon tetrachloride	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,1,1-Trichloroethane	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
2-Butanone	ND		10.0		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,1-Dichloropropene	ND		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Benzene	ND		0.200		ug/l		01/28/13 10:50	01/28/13 16:22	1.00

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Client Sample ID: (b) (6) .012513

Date Collected: 01/25/13 11:15 Date Received: 01/25/13 12:40

Lab Sample ID: SWA0113-04

Matrix: Water

Method: EPA 8260C - Volatile Organ Analyte	Result Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane (EDC)	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Trichloroethene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Dibromomethane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,2-Dichloropropane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Bromodichloromethane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
cis-1,3-Dichloropropene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Toluene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
4-Methyl-2-pentanone	ND	10.0		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
trans-1,3-Dichloropropene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Tetrachloroethene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,1,2-Trichloroethane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Dibromochloromethane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,3-Dichloropropane	ND	1.00	*	ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,2-Dibromoethane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
2-Hexanone	ND	10.0		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Ethylbenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Chlorobenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1.1.1.2-Tetrachloroethane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
m,p-Xylene	ND	2.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
o-Xylene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Styrene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Bromoform	. ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
	ND	1.00		ug/l	1.0	01/28/13 10:50	01/28/13 16:22	1.00
Isopropylbenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
n-Propylbenzene 1,1,2,2-Tetrachloroethane	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Bromobenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,3,5-Trimethylbenzene	ND .	1.00		ug/l	2 11 11 1	01/28/13 10:50	01/28/13 16:22	1.00
2-Chlorotoluene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,2,3-Trichloropropane 4-Chlorotoluene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
tert-Butylbenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,2,4-Trimethylbenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
sec-Butylbenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
p-Isopropyltoluene		1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,3-Dichlorobenzene	ND					01/28/13 10:50	01/28/13 16:22	1.00
1,4-Dichlorobenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
n-Butylbenzene	ND	1.00		ug/l			01/28/13 16:22	1.00
1,2-Dichlorobenzene	ND	1.00		ug/l		01/28/13 10:50		1.00
1,2-Dibromo-3-chloropropane	ND	5.00		ug/l		01/28/13 10:50	01/28/13 16:22	
Hexachlorobutadiene	ND	2.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,2,4-Trichlorobenzene	ND	1.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Naphthalene	ND	2.00		ug/l		01/28/13 10:50	01/28/13 16:22	1.00
1,2,3-Trichlorobenzene	. ND	1.00	. '	ug/l		01/28/13 10:50	01/28/13 16:22	1.00
Surrogate	%Recovery Qualifier	Limits				Prepared	Analyzed	Dil Fac
Dibromofluoromethane	94.0	71.2 - 143				01/28/13 10:50	01/28/13 16:22	1.00
Toluene-d8	113	74.1 - 135				01/28/13 10:50	01/28/13 16:22	1.00
4-bromofluorobenzene	99.0	68.7 - 141				01/28/13 10:50	01/28/13 16:22	1.00

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Lab Sample ID: SWA0113-05

Matrix: Water

Client Sample ID: School Well -012513

Date Collected: 01/25/13 11:50

Date Received: 01/25/13 12:40

Analyte	V	Result	Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Chloromethane		ND		3.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Vinyl chloride		ND		0.200	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Bromomethane		ND		5.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Chloroethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Trichlorofluoromethane		. ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,1-Dichloroethene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Carbon disulfide		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Methylene chloride		ND		10.0	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Acetone		ND	С	25.0	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
trans-1,2-Dichloroethene	×	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Methyl tert-butyl ether		. ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,1-Dichloroethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
cis-1,2-Dichloroethene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
2,2-Dichloropropane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Bromochloromethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Chloroform		1.23		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Carbon tetrachloride		22.0		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,1,1-Trichloroethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
2-Butanone		ND		10.0			01/28/13 10:50		
		ND			ug/l			01/28/13 16:45	1.00
1,1-Dichloropropene				1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Benzene		ND		0.200	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2-Dichloroethane (EDC)		ЙD		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Trichloroethene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Dibromomethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2-Dichloropropane		ND-		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Bromodichloromethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
cis-1,3-Dichloropropene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Toluene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
4-Methyl-2-pentanone		ND		10.0	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
trans-1,3-Dichloropropene		ND		1,00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Tetrachloroethene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,1,2-Trichloroethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Dibromochloromethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,3-Dichloropropane	ove.	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2-Dibromoethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
2-Hexanone		ND		10.0	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Ethylbenzene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Chlorobenzene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,1,1,2-Tetrachloroethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
m,p-Xylene		ND		2.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
o-Xylene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Styrene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Bromoform		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
İsopropylbenzene		ND		1.00	ug/l	. "	01/28/13 10:50	01/28/13 16:45	1.00
n-Propylbenzene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,1,2,2-Tetrachloroethane		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Bromobenzene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,3,5-Trimethylbenzene		ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00

Client: Geo Engineers - Spokane

Project/Site: [none]

4-bromofluorobenzene

Toluene-d8

TestAmerica Job ID: SWA0113

Lab Sample ID: SWA0113-05

01/28/13 10:50

01/28/13 10:50

01/28/13 16:45

01/28/13 16:45

1.00

1.00

Matrix: Water

Client Sample ID: School Well -012513

Date Collected: 01/25/13 11:50 Date Received: 01/25/13 12:40

Analyte	Result	Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorotoluene	ND	-	1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2,3-Trichloropropane	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
4-Chlorotoluene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
tert-Butylbenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2,4-Trimethylbenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
sec-Butylbenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
p-Isopropyltoluene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,3-Dichlorobenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,4-Dichlorobenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
n-Butylbenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2-Dichlorobenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2-Dibromo-3-chloropropane	ND		5.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Hexachlorobutadiene	ND		2.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2,4-Trichlorobenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Naphthalene	ND		2.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
1,2,3-Trichlorobenzene	ND		1.00	ug/l		01/28/13 10:50	01/28/13 16:45	1.00
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Dibromofluoromethane	94.6	-	71.2 - 143			01/28/13 10:50	01/28/13 16:45	1.00

74.1 - 135

68.7 - 141

113

96.4

QC Sample Results

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C

Lab Sample ID: 13A0139-BLK1

Matrix: Water

Analysis Batch: 13A0139

Client Sample ID: Me	thod Blank
Prep 7	Type: Total
Prep Batch:	13A0139_P

nalyte	Blank Result	Blank Qualifier	RL	MDL Unit	D Prepared	Analyzed	Dil F
ichlorodifluoromethane	ND		1.00	ug/l	01/28/13 10:5		1.
hloromethane	ND		3.00	ug/l	01/28/13 10:5		1.
inyl chloride	ND		0.200	ug/l	01/28/13 10:5		1.
	ND		5.00	ug/l	01/28/13 10:5		1.
romomethane	ND		1.00		01/28/13 10:5		1.
hloroethane			1.00	ug/l	01/28/13 10:5		1.
richlorofluoromethane	ND			ug/l			
1-Dichloroethene	ND		1.00	ug/l	01/28/13 10:5		1.
arbon disulfide	ND		1.00	ug/l	01/28/13 10:5		1.
ethylene chloride	ND		10.0	ug/l	01/28/13 10:5		1.
cetone	ND		25.0	ug/l	01/28/13 10:5		1.
ans-1,2-Dichloroethene	ND		1.00	ug/l	01/28/13 10:5		1.
ethyl tert-butyl ether	ND		1.00	ug/l	01/28/13 10:50		1.
1-Dichloroethane	ND		1.00	ug/l	01/28/13 10:50		1.
s-1,2-Dichloroethene	ND		1.00	ug/l	01/28/13 10:50		1.
2-Dichloropropane	ND		1.00	ug/l	01/28/13 10:50		1.
romochloromethane	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
hloroform	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
arbon tetrachloride	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
1,1-Trichloroethane	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
Butanone	ND		10.0	ug/l	01/28/13 10:50	01/28/13 12:26	1.
1-Dichloropropene	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1
enzene	ND		0.200	ug/l	01/28/13 10:50	01/28/13 12:26	1
2-Dichloroethane (EDC)	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
ichloroethene	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
bromomethane	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
2-Dichloropropane	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
omodichloromethane	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
s-1,3-Dichloropropene	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	. 1.
bluene	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
Methyl-2-pentanone	ND		10.0	ug/l	01/28/13 10:50	01/28/13 12:26	1.
ans-1,3-Dichloropropene	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
etrachloroethene	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
1.2-Trichloroethane	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
ibromochloromethane	ND		1.00	ug/l	01/28/13 10:50		1.
3-Dichloropropane	ND		1.00	ug/l	01/28/13 10:50		1.
2-Dibromoethane	ND		1.00	ug/l	01/28/13 10:50		1.
Hexanone	ND		10.0	ug/l	01/28/13 10:50		1.
hylbenzene	ND		1.00	ug/l	01/28/13 10:50		1.
nlorobenzene	ND		1.00	ug/l	01/28/13 10:50		1.
1,1,2-Tetrachloroethane	ND		1.00		01/28/13 10:50		1.
50 TO TO THE TOTAL STREET	ND		2.00	ug/l	01/28/13 10:50		1.
,p-Xylene				ug/l	01/28/13 10:50		
Xylene	ND		1.00	ug/l			1.
yrene	ND		1.00	ug/l	01/28/13 10:50		1.
omoform	ND		1.00	ug/l	01/28/13 10:50		1.
opropylbenzene	ND		1.00	ug/l	01/28/13 10:50		1.
	ND		1.00	ug/l	01/28/13 10:50	01/28/13 12:26	1.
Propylbenzene 1,2,2-Tetrachloroethane	ND ND		1.00	ug/l	01/28/13 10:50		1.







QC Sample Results

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C (Continued)

Lab Sample ID: 13A0139-BLK1 **Matrix: Water**

Analysis Batch: 13A0139

Client Sample ID: Method Blank Prep Type: Total

Prep Batch: 13A0139_P

raidif dio Datom Tortoto									a special control of	Aprille 1
	Blank	Blank								
Analyte	Result	Qualifier	RL	MDL	Unit		D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND	1	 1.00		ug/l	74 1		01/28/13 10:50	01/28/13 12:26	1.00
2-Chlorotoluene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
1,2,3-Trichloropropane	ND		 1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
4-Chlorotoluene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
tert-Butylbenzene	ND	W A	1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
1,2,4-Trimethylbenzene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
sec-Butylbenzene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
p-Isopropyltoluene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
1,3-Dichlorobenzene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
1,4-Dichlorobenzene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
n-Butylbenzene	ND		1.00		ug/l		2	01/28/13 10:50	01/28/13 12:26	1.00
1,2-Dichlorobenzene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
1,2-Dibromo-3-chloropropane	ND		5.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
Hexachlorobutadiene	ND		2.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00
1,2,4-Trichlorobenzene	ND		1.00		ug/l			01/28/13 10:50	01/28/13 12:26	1.00

ND

ND

	Diank L	Diain				
Surrogate	%Recovery (Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	93.6		71.2 - 143	01/28/13 10:50	01/28/13 12:26	1.00
Toluene-d8	117		74.1 - 135	01/28/13 10:50	01/28/13 12:26	1.00
4-bromofluorobenzene	101		68.7 - 141	01/28/13 10:50	01/28/13 12:26	1.00

2.00

1.00

ug/l

ug/l

Lab Sample ID: 13A0139-BS1

Client Sample ID: Lab Control Sample

01/28/13 12:26

01/28/13 12:26

1.00

1.00

01/28/13 10:50

01/28/13 10:50

Analysis Batch: 13A0139

Matrix: Water

Naphthalene

1,2,3-Trichlorobenzene .

	Part of the		Spike	LCS	LCS			%Rec.	21 -4 .13
Analyte	ga a company		Added	Result	Qualifier	Unit E	%Rec	Limits	
1,1-Dich	nloroethene		10.0	9.98		ug/l	99.8	78.1 - 155	. In the
Benzen	e		10.0	11.4		ug/l	114	84.2 - 122	
Trichlor	oethene		10.0	10.3		ug/l	103	74.8 - 123	
Toluene			10.0	11.2		ug/l	112	85.8 - 123	
Chlorob	enzene		10.0	10.6		ug/l	106	79.2 - 125	
1									

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane	94.2		71.2 - 143
Toluene-d8	119		74.1 - 135
4-bromofluorobenzene	101		68.7 - 141

Lab Sample ID: 13A0139-MS1

Matrix: Water

Analysis Batch: 13A0139

Client	Sample	ID: School	Well	-012513
Chem	Sample	ID. SCHOOL	MAGII	-012313

Prep Type: Total

Prep Type: Total

Prep Batch: 13A0139_P

Prep Batch: 13A0139_P

Analysis Butom to	ANTA	Sample	Sample	Spike	Matrix Spike	Matrix Spi	ke			%Rec.	Service / Page
Analyte		Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	- 5 - 1 - 1 - 1 - 1 - 1	ND	100	10.0	15.5	M7	ug/l		155	52.5 - 135	er ser segal
Benzene		ND		10.0	17.2	M7	ug/l		172	72.3 - 120	
Trichloroethene		ND		10.0	16.2	M7	ug/l		162	80 _ 120	
Toluene		ND		10.0	16.5	M7	ug/l		165	62.7 - 137	

QC Sample Results

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C (Continued)

Lab Sample ID: 13A0139-MS1

Matrix: Water

Analysis Batch: 13A0139

Client Sample ID: School Well -012513

Prep Type: Total

Prep Batch: 13A0139_P

	Sample	Sample	Spike	Matrix Spike	Matrix Spik	e			%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chlorobenzene	ND		10.0	16.0	M7	ug/l	_	160	78.9 - 120	

Surrogate	Matrix Spike %Recovery	Matrix Spike Qualifier	Limits
Dibromofluoromethane	93.2		71.2 - 143
Toluene-d8	112		74.1 - 135
4-bromofluorobenzene	99.6		68.7 - 141



Lab Chronicle

Client: Geo Engineers - Spokane

Project/Site: [none]

Total

Total

Prep Type

Prep Type

Total

Total

Total

Total

TestAmerica Job ID: SWA0113

Client Sample ID: W20-012113

Date Collected: 01/21/13 13:02

Lab Sample ID: SWA0113-01

Lab Sample ID: SWA0113-02

Lab Sample ID: SWA0113-03

Matrix: Water

Matrix: Water

Matrix: Water

Date Received	01/25/13 12:	40
F-80-1 - 5-1-	Batch	E
Prep Type	Type	N

Batch	
Type	
Prep	
Analysis	

Batch Method Run GC/MS Volatiles EPA 8260C



Dilution

Factor

1.00

1.00

Dilution

Factor

1.00

1.00

Run

Run

Batch Number 13A0139_P 13A0139

Number

13A0139

Batch

Number

13A0139

13A0139 P

13A0139_P

or Analyzed 01/28/13 10:50 01/28/13 15:11

Prepared

Analyst CBW **CBW**

Lab TAL SPK TAL SPK

Client Sample ID: W26-012113

Date Collected: 01/21/13 15:50

Date Received: 01/25/13 12:40

Batch	Prepared

or Analyzed

01/28/13 15:35

Analyst CBW 01/28/13 10:50

CBW

Lab TAL SPK

TAL SPK

Client Sample ID: Freeman Store-012113

Batch

Туре

Prep

Analysis

Batch

Туре

Prep

Analysis

Batch

Batch

Method

GC/MS Volatiles

EPA 8260C

Method

GC/MS Volatiles

EPA 8260C

Date Collected: 01/21/13 14:30 Date Received: 01/25/13 12:40

Prepared or Analyzed 01/28/13 10:50

01/28/13 15:59

Analyst CBW

CRW

Lab

TAL SPK TAL SPK

Client Sample ID:(b) (6) -012513

Date Collected: 01/25/13 11:15 Date Received: 01/25/13 12:40

Lab Sample ID: SWA0113-04

Matrix: Water

	Batch
Prep Type	Type
Total	Prep
Total	Analysis

Batch Method GC/MS Volatiles EPA 8260C

Dilution Run Factor 1.00 1.00

Batch Number 13A0139_P 13A0139

Prepared or Analyzed 01/28/13 10:50 01/28/13 16:22

Analyst CBW CBW

Lab TAL SPK

TAL SPK

Client Sample ID: School Well -012513

Date Collected: 01/25/13 11:50

Lab Sample ID: SWA0113-05

Matrix: Water

Date	Received:	01/25/13	12:40
		Batc	h

	Batch
Prep Type	Туре
Total	Prep
Total	Analysis

Batch
Method
GC/MS Vola

Run tiles EPA 8260C

Factor 1.00 1.00

Dilution

Batch Number 13A0139 P 13A0139

or Analyzed 01/28/13 10:50 01/28/13 16:45

Prepared

Analyst CBW CBW

TAL SPK TAL SPK

Laboratory References:

TAL SPK = TestAmerica Spokane, 11922 East 1st. Avenue, Spokane, WA 99206, TEL (509)924-9200

Certification Summary

Client: Geo Engineers - Spokane

Project/Site: [none]

TestAmerica Job ID: SWA0113

Laboratory: TestAmerica Spokane

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-071	10-31-13
Washington	State Program	10	C569	01-06-14











Method Summary

Client: Geo Engineers - Spokane Project/Site: [none]

TestAmerica Job ID: SWA0113

Method Method Description Protocol Laboratory

EPA 8260C Volatile Organic Compounds by EPA Method 8260C

TAL SPK

Protocol References:

Laboratory References:

TAL SPK = TestAmerica Spokane, 11922 East 1st. Avenue, Spokane, WA 99206, TEL (509)924-9200

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EstAmerico

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek PRwy N Suite 400, Bothell, WA 98011-8244 5755 8Th Street East, Tacoma, Wa 98424

425-420-9200 FAX 420-9210 253-9212-2310 FAX 922-5047 503-906-9200 FAX 906-9210 907-563-9200 FAX 563-9210 9405 SW Nimbus Ave, Beaverton, OR 97008-7145 2000 W International Airport Rd Ste A10, Anchorage, AX 99502-1119

TAL-1000 (0212) ¥7¥ ₩0™ * Turnaround Requests less than standard may incur Rush Charzes ₹ PRINCE PARTY TO THE 12'40 PAGE OF 1 <1 TURNAROUND REQUEST DATE LOCATION/ COMMENTS 7 5 4 3 2 Work Order #: SAJADAJA Organic & Inorganic Analyses in Business Days * LIO LIO OTHER Specify: MATRIX # OF (W, S, O) CONT. (N 3 3 FIRM 3 3 P 3 Miller CHAIN OF CUSTODY REPORT RECEIVED BY: PRINT NAME: RECEIVED BY: PRINT NAME REQUESTED ANALYSES PRESERVATIVE INVOICE TO: JUAN AUADELS DATE: 1/25/13 1240 P.O. NUMBER DATE TIME * CALBON TETRA CHIDENPE IS LOST INDOCTANT 0928 W. 图 X NOCE 1302 1550 50011 1430 PHONE: SDY-363-3125 FAX: 509-363-3126 FIRM FIRM SAMPLING DATE/TIME 1/25/13 ADDRESS: 573 E-740 AKE SIOKAWELWA ARLOY 1/2/113 1/2/13 FREEDOWN STORE-OLDIS 1/21/13 CLIENT: CLEO CONGLUSERS REPORT TO: JOHN ALDOPENS Se pool 4/6/1-0112 Geed-012513 W20 - 012113 W216-012113 CLIENT SAMPLE IDENTIFICATION ADDITIONAL REMARKS: PROJECT NUMBER: PROJECT NAME: SAMPLED BY: RELEASED BY: RELEASED BY: PRINT NAME: PRINT NAME:

	merica Sp le Receip			
Work Order #: SWADWS Client: Gpo-Tro	ifles			Project: FTERMAN
Date/Time Received: \. 25-13 12:40	Bk: 32			
Samples Delivered By: Shipping Service Courler Sclient	Other:			
List Air Bill Number(s) or Atlach a photocopy of the Air Bill:				
Receipt Phase	Yes	No	ŅĀ	Comments
Were samples received in a cooler:	$\perp X_{-}$		-	
Custody Seals are present and intact:	<u> </u>			
Are CoC documents present:	 X			
Necessary signatures:	$\perp X_{-}$			
		ring IR Se		4910 IR Gun 2 (acceptance criteria 0-6 °C)
	7111 41113 01 50	Lac -		
If nouth Phase		Larie de		
Cogsin Phase (1997) (1900) By: (1905)	Yes	No	ŅĄ,	Comments
	Yes	No.	NA,	Comments
Date/Time: (d. P.C.) 1970 By; (1)	Yes	No.	NA.	Gornmants
Date/Time: (1) 1/2 1/2 By; (1) Are sample labels affixed and completed for each container	Yes	No.	NA,	Comments
Date/Time: (1/2-1/2) 1(2.02/2 By), (-/-) Are sample labels affixed and completed for each container Samples containers were received intact:	V03	No	N/A	Comments
Date/Time: 17.00 By: 17.00	Yos X	No.	NA.	Comments
Are sample labels affixed and completed for each container Samples containers were received intact: Do sample IDs match the CoC Appropriate sample containers were received for tests requested	Yes 9	No.	VA	Comments
Are sample labels affixed and completed for each container Samples containers were received intact: Do sample IDs match the CoC Appropriate sample containers were received for tests requested Are sample volumes adequate for tests requested	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	No.	VA	Comments
Are sample labels affixed and completed for each container Samples containers were received intact: Do sample IDs match the CoC Appropriate sample containers were received for tests requested Are sample volumes adequate for tests requested Appropriate preservatives were used for the tests requested	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	No -	I VA	Comments
Are sample labels affixed and completed for each container Samples containers were received intact: Do sample IDs match the CoC Appropriate sample containers were received for tests requested Are sample volumes adequate for tests requested Appropriate preservatives were used for the tests requested pH of inorganic samples checked and is within method specification	2 1 1 2 1 2 1	NO NO	NA:	Comments
Are sample labels affixed and completed for each container Samples containers were received intact: Do sample IDs match the CoC Appropriate sample containers were received for tests requested Are sample volumes adequate for tests requested Appropriate preservatives were used for the tests requested pH of inorganic samples checked and is within method specification Are VOC samples free of bubbles >6mm (1/4" diameter)	2 1 1 2 1 2 1	No.	NA.	Comments
Are sample labels affixed and completed for each container Samples containers were received intact: Do sample IDs match the CoC Appropriate sample containers were received for tests requested Are sample volumes adequate for tests requested Appropriate preservatives were used for the tests requested pH of inorganic samples checked and is within method specification Are VOC samples free of bubbles >6mm (1/4" diameter) Are dissolved parameters field filtered	2 1 1 2 1 2 1	NO NO	NA.	Commants
Are sample labels affixed and completed for each container Samples containers were received intact: Do sample IDs match the CoC Appropriate sample containers were received for tests requested Are sample volumes adequate for tests requested Appropriate preservatives were used for the tests requested pH of inorganic samples checked and is within method specification Are VOC samples free of bubbles >6mm (1/4" diameter) Are dissolved parameters field filtered Do any samples need to be filtered or preserved by the lab	2 1 1 2 1 2 1	No.	NA.	Comments

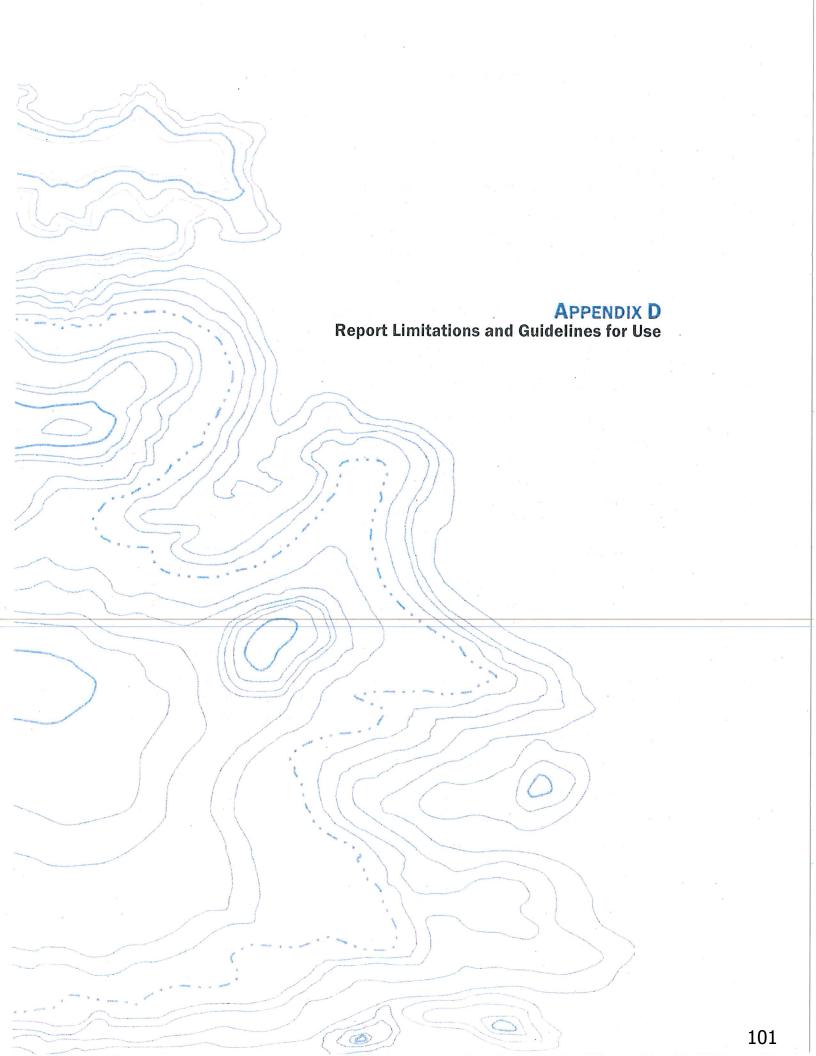
24 hours or less	48 hours	7 days	
Collform Bacteria	BOD, Color, MBAS	TDS, TSS, VDS, FDS	
Chromium +6	Nitrate/Nitrite	Sulfide	
	Orthophosphate	Aqueous Organic Prep	

Was the CoC scanned

If yes, was a CAR generated #

Were there Non-conformance issues at login

Form No. SP-FORM-SPL-002 12 December 2012



APPENDIX D REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This appendix provides information to help you manage your risks with respect to the use of this report. Please confer with GeoEngineers if you need to know more about how these "Report Limitations and Guidelines for Use" apply to your project or property.

Rend These Provisions Closely

It is important to recognize that environmental engineering and geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce the risk of misunderstandings or unrealistic expectations that lead to disappointments, claims and disputes.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

GeoEngineers has performed this feasibility evaluation in general accordance with the scope and limitations of our proposal, dated December 4, 2012. This report has been prepared for the exclusive use of David Evans & Associates, Inc. and the Freeman School District No. 358. This report may be made available to regulatory agencies for review. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures its services to meet the specific needs of its clients. For example, an ESA study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and property. Use of this report is not recommended for any purpose or project other than as expressly stated in this report.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for David Evans & Associates, Inc. and the Freeman School District No. 358. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this Project. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your Project,
- not prepared for the specific site explored, or
- completed before Project changes were made.

¹ Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.



If changes to the Project or property occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations in the context of such changes. Based on that review, we can provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the party(ies) to whom this report is addressed. No other party may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed Project scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

Environmental Regulations Change and Evolve

Some substances may be present in the vicinity of the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substances, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After This Phase II ESA is Completed

Performance of a Phase II ESA is intended to reduce uncertainty regarding the potential for contamination in connection with a property, but no ESA can wholly eliminate that uncertainty. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the subject property, by new releases of hazardous substances, new information or technology that become available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject

property or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. GeoEngineers will not assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location, or the reuse of such soil and/or groundwater on-site in any instances that we did not recommend, know of, or control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the subject property. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions throughout the property. Actual subsurface conditions may differ significantly from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Do Not Redraw the Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design documents. Only photographic or electronic reproduction that preserves the entire original boring log is acceptable, but separating logs from the report can create increase the risk of potential misinterpretation.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this Project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

